THE IRON AGE

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A Modern Shop With Unusual Features

Standard Machinery Company's New Works—How a Basement Saved Money—Heat Treating Plant Using Producer Gas

THE new works of the Standard Machinery Company, in Auburn, in the outskirts of Providence, R. I., are worthy, for a number of reasons, of the study of manufacturers who are contemplating the erection of factories or additions to existing plants. The buildings themselves were designed by the treasurer of the company, who is a contractor, and all details of equipment, installation, etc., were prepared in the drafting room of the works. The illustrations show the admirable results.

Peculiarly interesting is the reason why a basement story was given a large portion of the main building. Originally the structure was designed to have a single floor. If this plan had been carried out a very large amount of filling would have been required because of the slope of the land. As a result of careful study of the conditions, it was found to be cheaper to create a basement than to fill the land, and the large additional floor space thus afforded meant that a storehouse, the erection of which had been contemplated, would be unnecessary. Not only was the cost of the plant decreased,

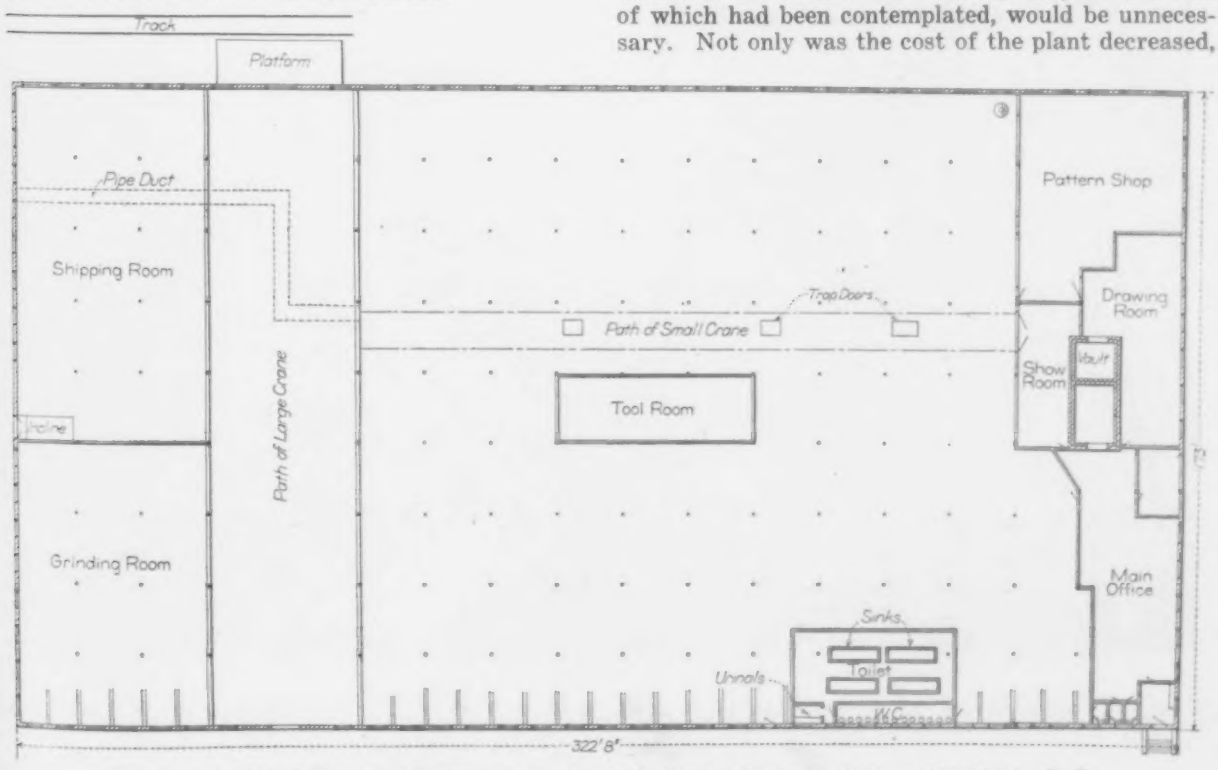
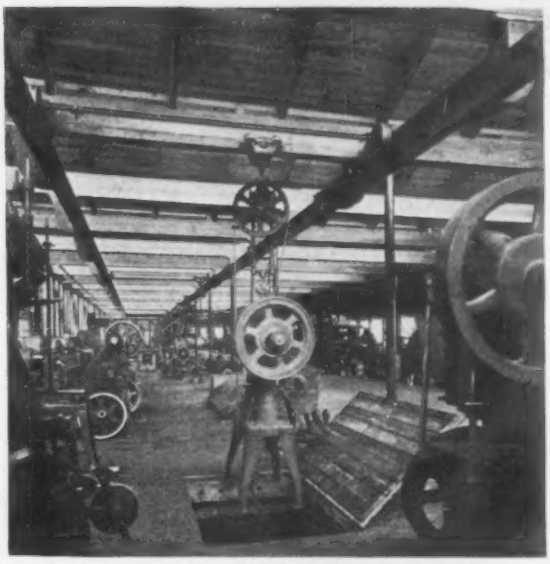


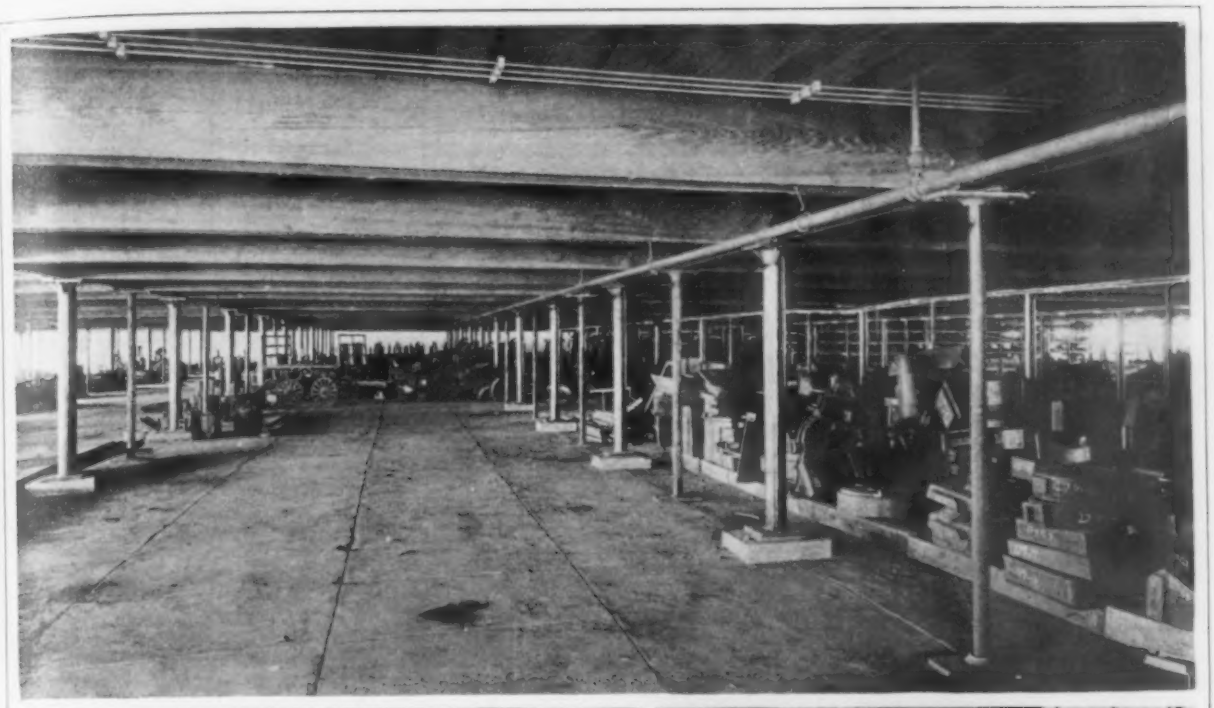
Fig. 2—Plan of the Main Building of the Standard Machinery Company, Auburn, Providence, R. I.



but the handling of finished products, materials and foundry patterns, in the routine of manufacturing, was made more economical.

The location of the plant is wholly desirable. The neighborhood has begun to flourish industrially. Auburn is in the city of Cranston and has a five-cent fare from Providence on the electric line. In fact, it is merely a continuation of Providence, for the intervening territory is continuously well settled. Within the fenced-in area, and only a little distance away, is the new and very modern plant of the Hope Foundry, which removed its business from Warren, R. I., to become more closely affiliated with the Standard shops, and as a consequence the latter have what is practically the equivalent of a foundry of their own. A spur track from the shore line of the New York, New Haven & Hartford Rail-

Fig. 3—The Saw-Tooth Covered Machine Shop. Fig. 4—Completed Machines Are Lowered Through Hatchways from the Shop Floor to the Storage Space in the Basement. Fig. 5—The Heavier Machinery Is Installed in the Crane Bay, the Location of Which Is Shown in Figs. 1 and 2.



road serves both plants. The site, comprising nine acres, permits of ample future growth. Next door is the great works of the General Fire Extinguisher Company. Half a mile to the south is the plant of the D and W Fuse Company, and the same distance to the north are the mills of the Universal Winding Company. The combination of industry serves to make Auburn a desirable labor center.

The main building is 175 ft. wide and 325 ft. long. At the front are the offices, the pattern shop and a large room which will be used as a showroom, where visitors may inspect the company's products, drop hammers, presses, rolling mills, wire-drawing machinery and swaging machines, and ball and roller bearings which run from the small into the largest sizes and constitute a very important part of the company's output. At the other end of the

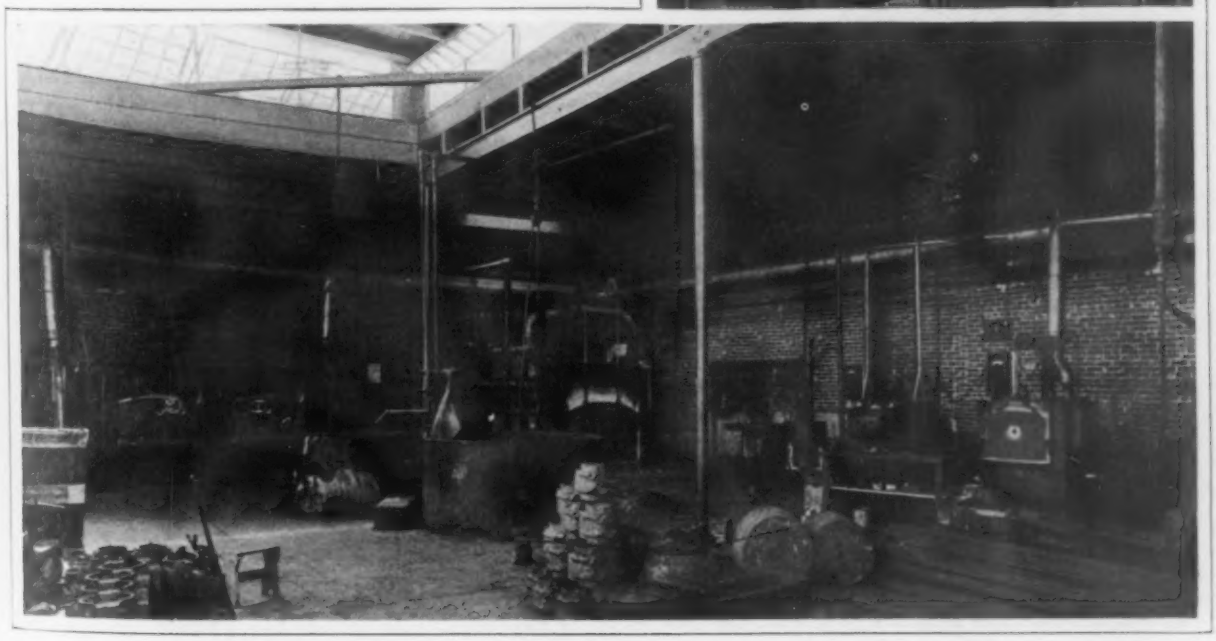


Fig. 6—Instead of Expense of Filling and Grading, a Basement Was Provided Under the General Shop Floor, Affording Storage and Other Facilities. Fig. 7—A Convenient Location for the Numerous Machinery Driving Motors Was Obtained Under the Sawtooth Roof. Fig. 8—The Forge Shop and Heat Treating Furnaces.

structure is the cranebay which runs across the building and takes 50 ft. of the total length. The great central portion of the factory constitutes one great room in which the lighter equipment is located and where the assembling is done.

The basement extends for a distance of 250 ft. from the north end of the building. The remaining 75 ft. is solid ground, 50 ft. of it comprising the craneway where the heavy machinery is installed, directly on the ground on concrete foundations. The two cranes serve both the heavy tools and the erectors on heavy machinery. On the southeast side of the craneway, entirely enclosed, is the grinding room, and on the southwest side the shipping and stock room. A craneway in the shipping room travels over the cutting-off machines and over the large platform scales, and meets the power cranes of the main bay, which is also met by the crane of

of earth would have been required and much of it would have had to be purchased. Therefore, the basement story was decided upon. The money saving has never been carefully estimated, but it amounts to thousands of dollars. The actual cost of the building was increased only by the amount of the basement columns, a matter of less than $1000, the sash of the side windows and the beams of the main floor. The large storehouse included in the original plans was, of course, unnecessary, because the basement provides ample space for all storage that may be necessary in a long time to come. Not only did the cost of the basement prove a saving as compared to filling, but the large expense of the storehouse was eliminated.

The big basement room is well lighted by side windows which vary in hight from 5 ft. at the north end to 2 ft. at the south. No provision is

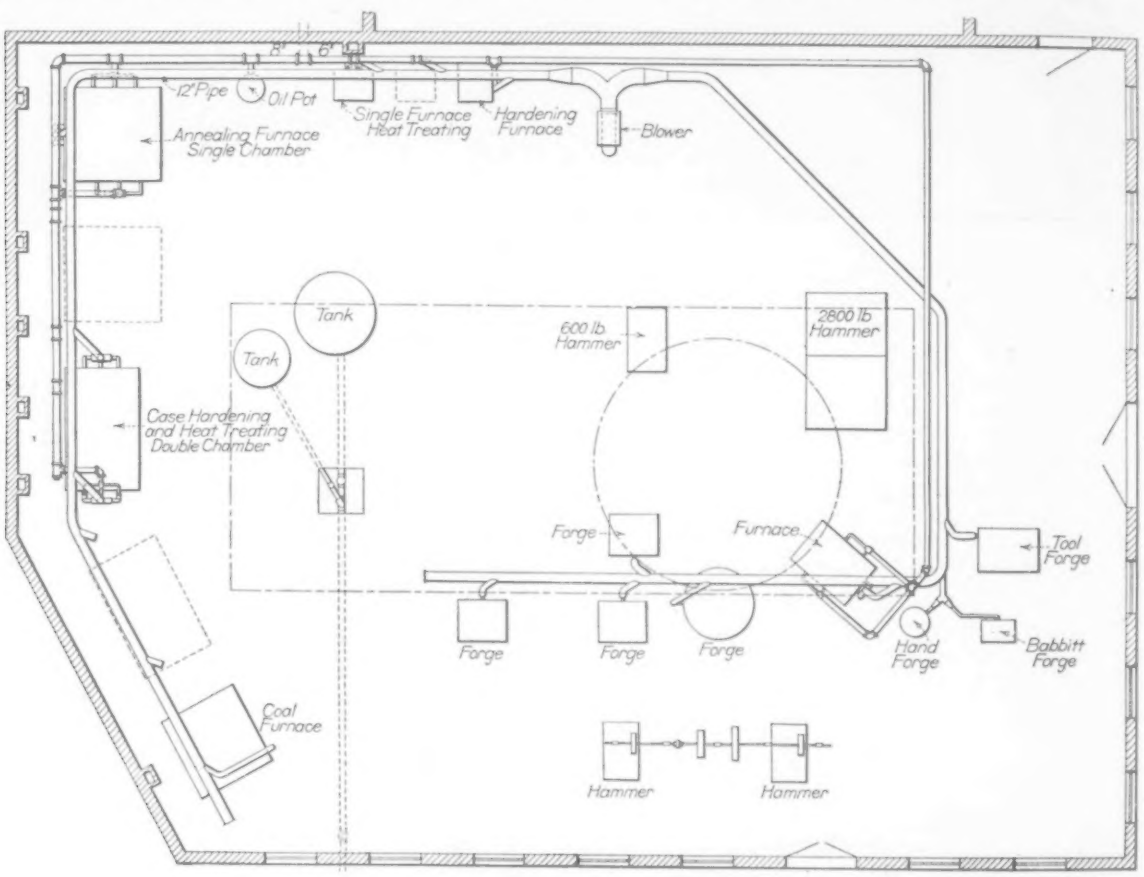


Fig. 9—Detailed Layout of the Forge Shop

the large factory room, thus affording a continuous carrier system. A machine is lifted from storage in the basement and conveyed to the power crane, which transfers it to the shipping room crane, which in turn delivers it to the floor for skidding, boxing or crating.

As has been stated, the land slopes downward from south to north parallel to the railroad tracks and the highway, between which thoroughfares the property is located, with a pitch of 8 ft. in the length of this one building. It was desirable to have the length of the structure north and south because of the spur track, because the windows of the sawtooth roof should have a northern exposure, and for other reasons. It was necessary that the main floor of the shop should be on a level with the floors of the forge shop and power house, located at the southerly end, not only for convenience of transportation, but because of the tunnel which carries the steam pipes and electric wires from the power house. To fill the land in order that the main floor should be directly upon the ground, 300,000 cu. ft.

made for artificial lighting. The room is not wired for electric lamps. It was considered unnecessary and also safer owing to the presence of the great number of patterns. The removal or storing of materials and machinery can be arranged to be accomplished in the hours of daylight, and in case of an emergency a portable electric lamp can be employed, receiving its current through a cord from a socket located on the main floor. Large storage capacity is required in this business because many customers, especially among the manufacturing jewelers, of whom there are hundreds in Providence and vicinity, demand instant delivery when they are in the market for machinery.

The structural details of this building are of particular interest, especially because of the fact that they were planned, as has already been stated, without the assistance of professional mill engineers. The main floor is supported by cast-iron columns, their bases resting upon concrete pillars in the basement floor, and surmounted by trussed plates, cast solid with them, which support the

Fig. 10—The Work Bench and Tables in the Pattern Shop Lie at Right Angles to the Line of Windows

floor beams. Extending longitudinally are 10-in. I-beams, while the lateral supports consist of 12 x 14-in. wooden timbers. The roof is supported by columns consisting of steel pipes which are extensions of the floor columns. Each sawtooth of the roof has a span of 18 ft. The lights of the steel sash of the skylight are of ribbed glass. The lights do not tip, as is frequently the practice, and therefore cast no unusual shadows. Instead of securing drainage by pitching the roof sideways, the roof between the teeth slopes to either side. It will be noted in Fig. 7 that the running of the roof beams crossways of the building permits of the creation of platforms by means of stringers to support the motors well up within the sawteeth.

Extending most of the length of the main factory is a traveling crane with hand hoist, which extends into the showroom. At intervals in the floor beneath the craneway are hatchways through which the lighter machines are lowered to the basement where they are received on trucks and wheeled to the points where they are to be stored.

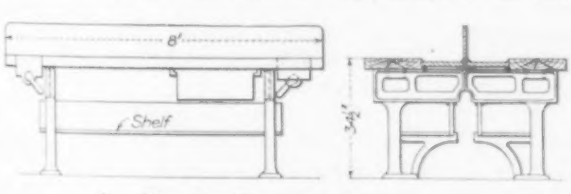


Fig. 11—The Work Bench

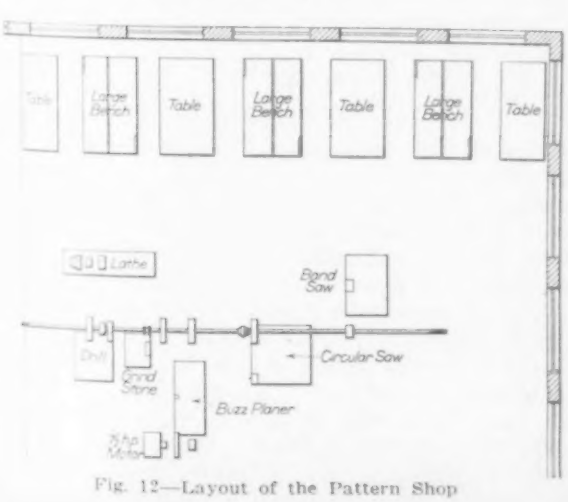


Fig. 12—Layout of the Pattern Shop

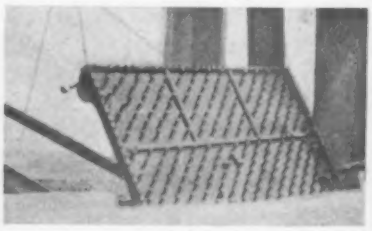
The toilet rooms are located in the main factory room. The fenced-in enclosure seen at the left hand in Fig. 3 is the coat room. The gates are provided with locks and the men cannot enter without securing a key from their foreman. Each man has his individual hook.

The offices and drafting room are heated by a separate main from the power house, so that during cold weather in case of overtime work, when the engineering department is very busy, or in inventory season, this portion of the building can be heated without compelling waste of steam in the manufacturing departments.

The walls of the cranebay run straight up to a flat roof, which has a narrow windowed monitor extending its entire length. This room is served by two cranes, one of 10 tons, the other of 7½ tons capacity. Each is arranged with an electric hoist and the larger has the attachment of a cab, together with two additional motors, so that it may be operated by power throughout.

At the southerly end of the main building is the forge shop, 70 x 100 ft., attached to which is the power house, and the gas-producer plant is located close by. The forge shop is one of the most complete in New England, as will be noted in the illustrations, especially in Fig. 9, which gives the layout in detail. Producer gas is employed for the heat-treatment of forgings, the fuel used being anthracite pea coal. The Standard Machinery Company is one of the first in the East to use this fuel in its heat-treating department, and already has found the process satisfactory and economical, especially in the face of increasing prices of fuel oil.

The pattern shop is an interesting department of the plant. The details are shown in Figs. 10, 11 and 12, including the construction of the work benches. They are placed at right angles to the windows which permits of a better conservation of floor, permits two men to work at a bench and gives a better light from the windows.



The Finger-Like Points on the Inside of the McMurray Cast-Iron Coke-Oven Door, for Retaining the Campbell Plastic Clay Lining, Are Shown in the Middle Picture. At the Right and Left, Respectively, Are the Old and New Ways of Sealing the Doors.

COKE OVEN APPLIANCES

Recent Developments in Mechanical Equipment for Bee Hive and Horizontal Coke Ovens

A number of new and interesting developments in equipment of bee-hive and horizontal coke ovens have come into the field in the past few years. Among these are the McMurray door, the Stauft coke extractor and Campbell's plastic clay for filling and daubing coke-oven doors.

It has been customary to line all coke-oven doors except the McMurray door with fire-brick of special shapes or blocks. The McMurray door, the invention of William McMurray, superintendent of the Mount Pleasant Coke Company, near Mt. Pleasant, Pa., is of solid cast iron with finger-like projections on the inside, which serve as retaining points for a fire-clay daubing mixture. One of the accompanying illustrations shows the inside of the door. The projections are set in an upward angle and may be cast in place, but modifications of the idea consist of rivets which can be renewed if the projections get broken off or burnt out.

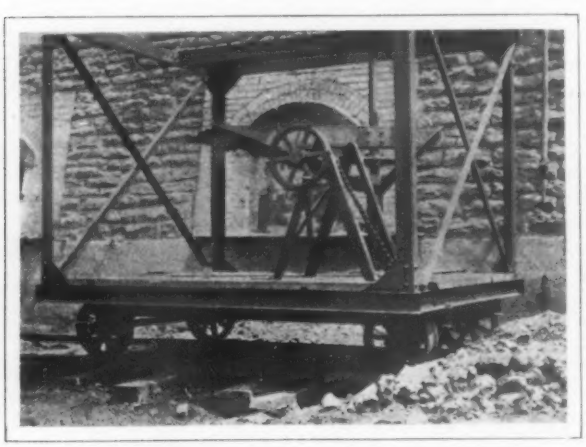
Another picture shows the door in place on a machine front, arranged for mechanical handling. Mr. McMurray uses his door on rectangular ovens in four sections on account of the size and weight. Hinges are set in the oven wall, but there are other methods that might be adopted. The door for hand and machine bee-hive ovens is in two sections with the top dropping back on a hinge for leveling. The door proper for machine and bee-hive ovens weighs between 500 and 600 lb. with the lining.

THE PLASTIC CLAY

In developing this door it was necessary to find a suitable daubing mixture which would be sufficiently refractory and remain in place for a satisfactory period of time. It soon developed that the usual mortar made on the coke yard from loam, clay and ground brickbats gave at best only a few months of service on account of its cracking and falling off, causing hot spots on the iron frame. J. R. Campbell, chief chemist for the H. C. Frick Coke Company, became interested in the summer of 1913 for D. B. Stauft, who was desirous of securing a trial of the door with a better daubing material. Mr. Campbell has developed a plastic-clay daubing mixture which he claims has solved the problem of the proper lining for a door of this type. On account of the high-grade materials going into the composition of this mixture and the careful preparation necessary, it is urged that it be made at the brick works and not on the coke oven plant, where there are usually no facilities for such work. The mixture consists of refractory material of flint and plastic nature with special binding material. It is shipped in its plastic and tempered state ready to be applied. In case storage of the material is necessary, as for minor repairs, it is buried in a pit and kept damp by sprinkling occasionally with water and covering with a wet brattice cloth or something similar.

In application it must be well tamped in the frame and, if possible, the door should be allowed to dry out before being placed in service. The heat from the oven burns the mixture into a solid brick and a glaze appears on the inside which resists wear. At this writing, no doors have actually been lost through failure of the daubing from a refractory standpoint, nor has it failed to stick to the projections on the McMurray door.

The daubing has also been used on the Humphries door instead of tile. It has also been found to make a good lining for by-product coke-oven doors and has been used around open-hearth furnaces and boiler furnaces. The mixture is covered by a patent granted to Mr. Campbell and the Harbison-Walker Refractories Company, Pittsburgh, has the manufacturing rights.



Door Extractor Patented by D. B. Stauft, Taylor Coal & Coke Company, for Lifting Out McMurray Doors

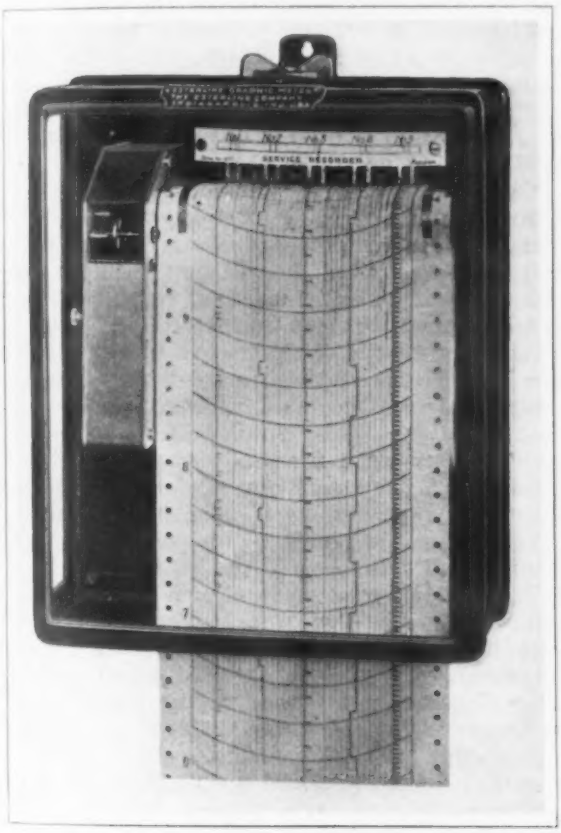
THE STAUFT DOOR EXTRACTOR

Another illustration shows the Stauft door extractor, which is used by the Taylor Coal & Coke Company, Uniontown, Pa., to remove the McMurray door. This machine is the invention of D. B. Stauft, general manager of the Taylor Coal & Coke Company. It is a jack on a truck, which runs ahead of the coke machine. The door is swung out for inspection, i. e., to see the condition of the daubing material, and then placed on the supports at either side of the oven door. This method is similar to that used in handling by-product coke-oven doors. Another mechanical appliance developed by Mr. Stauft is a patented coke extractor.

Improvements like those described indicate that bee-hive coke-oven operators are probably finding it necessary to adopt mechanical and labor-saving devices to reduce the cost and enable them to compete with the by-product coke ovens, which now produce one-third of the coke made in the United States and are increasing the percentage each year.

New Production Recording Device

An instrument intended to increase efficiency in machine-tool operation was recently placed on the market by the Esterline Company, Indianapolis, Ind. It is a meter operating on the same general principle as common graphic or curve drawing instruments. It is equipped with pens up to the number of, say, ten. Each pen is controlled electrically, so that when a record is made, a vertical line about ⅛ in. in length is drawn across the chart, the pen returning to the zero position after each record is



Instrument for Recording When Machines Are in Operation or Otherwise Ascertaining Rates or Efficiency of Production

made. The controlling devices for the various pens are connected to different machines so that one record is produced for each operation or for a certain number of operations. On account of the paper traveling through the meter by means of clockwork, the resulting record is a series of short lines, the spacings of which represent the rate at which operations are being completed. If the machine is being operated up to capacity, the series of lines will be close together, but if the machine stands idle for several minutes, a straight horizontal line will be drawn across the chart showing that no work was accomplished during this time.

The clock may be equipped with gears giving paper speeds of ¾, 1½, 3, 6 or 12 in. per hour. An attachment can also be provided giving additional chart speeds of 45, 90, 180, 360 and 720 in. per hour. The operation of the instrument may be interrupted at any time.

The instrument is mounted in an enameled metal case with rubber-covered binding posts located at the bottom for making the electrical connection. The case has lugs for fastening to a wall or partition. One instrument may be located in the superintendent's or manager's office and, operated by small wires, connected to the machines located at various parts of the plant several thousand feet away. Any source of direct current, storage battery, or shop or trolley voltage may be used. The instruments are also furnished with a counting attachment arranged to total the operations and thus give production quickly for the day or period.

Max Ams Machine Company's New Plant

The Max Ams Machine Company, now located at Mt. Vernon, N. Y., is erecting an additional plant at Bridgeport, Conn., to take care of its increasing business. It has a large and growing export trade which is handled through its representatives in South Africa, Australia, India, China, Japan, South America, England and the European continent.

The area of the new site is approximately 15 acres, and the plant is to be equipped with every facility to handle its output economically. The main shop and adjacent saw-tooth sections, practically all-steel construction, will contain every modern tool and device that the progress of the industry requires. The main erecting shop will be provided with 25-ton electric cranes, and railroad sidings will run into the plant to facilitate the handling of large units. In addition to these buildings there will be a special administration building, having three stories, for the general and private offices and drafting room. This building will be connected by means of bridges with the works. The power and heating plants will be in separate buildings. The welfare of the employees will be looked after by the erection of a special recreation building and the laying out of baseball grounds and tennis courts.

The output of the company is largely machinery for the making of tin containers, applied more particularly to the food industry, its specialty being for the manufacture of the Sanitary can, now so extensively introduced to the canned goods industry. The Max Ams Machine Company is the pioneer in that field and has developed the idea to practical perfection. It likewise builds an extensive line of power presses as applied to the sheet metal-working industry in general. The company expects to occupy its new home about February, 1915.

Record of a Welded Hack Saw Blade

A remarkable test of a hack saw blade in that it cut off 10,000 pieces of ⅞-in. round cold rolled steel, meanwhile being broken and welded twice and ground three times, has been learned of from E. C. Atkins & Co., Inc., saw manufacturers, Indianapolis. It appears that a manufacturer of automobiles in Detroit authorized the master mechanic of the works to make a test of various hack saw blades and he was therefore instructed to keep a record of results. The plan was to secure information concerning strength, cutting and lasting qualities of the material.

In the case of the Atkins blade, which is known as the AAA No. 440, 18 in. in length, the blade cut 1000 pieces of the ⅞-in. round cold rolled steel and was then broken by accident, the operator dropping a bar on the blade. The blade was welded by the oxy-acetylene welder and then cut 3000 more pieces of the same material, when a similar accident occurred to the other end of the blade. This break was repaired in the same manner, after which the blade made 6000 additional cuts, making a total of 10,000 pieces. During the test the blade was resharpened by grinding the teeth on an ordinary tool room grinder three times. The number of cuts is equivalent to cutting 730 lin. ft. of ⅞-in. stock.

The J. F. Lucey Company, oil well supplies, announces the removal of its general offices from 50 Church street to the Woolworth Building, 233 Broadway, twenty-third floor, New York City.

Eliminating Waste Motion in Molding*

How Cost and Time May Be Reduced With Little Money Expenditure—Study Made of Bench Molding

—BY R. E. KENNEDY AND J. C. PENDLETON†—

That there are waste motions in all foundry operations, due to improper training, poor tools and equipment, and a lack of planning on the part of the management is realized by all foundrymen, but the steps taken to better these conditions are comparatively few; the average worker and employer content themselves with the generally accepted practice of past generations of manufacturers. Statistics show that the average workman's efficiency is only a small per cent. of what it is possible for it to be, owing to the above named conditions. Much has been done in large plants

Fig. 1—Type of Molding Bench Common to a Large Number of Foundries

to eliminate and cut down the motions of workers by the installation of sand conveyors, continuous molding plants, molding machines, etc., but every shop has an almost unlimited number of places for reducing time and cost with only a very small expenditure of money. These changes can be brought about by following out the suggested improvements shown by careful time and motion studies, which reveal better than anything else the opportunities for bettering conditions.

The time is past when everything can be left to the discretion of the molder. The expertly trained all around molder mechanic is growing more and more difficult to find because of the tendency towards specialization in the foundry. The complete planning out in advance by the foreman of work is becoming more of a necessity all the time. Cheaper and quicker methods of operation are having to be found to meet the changing conditions, which are tending towards closer competition. All orders received have to be analyzed carefully for cheap methods of production, special apparatus and machines being one of the important features of cheap output. The best foremen and superintendents are always viewing the work with a critical eye, constantly asking themselves if it cannot be done in a better way. They do not allow themselves to be hampered by the traditional way of the past.

It is not our intention to touch further on the underlying principles which make changed conditions necessary, but to show by the working out of an example how similar methods of investigation may be used in working out every day questions of improvement in the foundry. To best explain the method we will study the use of the ordinary molding bench and the operation of turning out any simple casting in small quantities, too small to pay for fitting up for machine molding.

Outside of its use in combination with mechanical features as a molding machine, the snap bench has been given very little consideration. Knowing that waste motion and inefficient methods were common occurrences in molding, careful study of the operations performed was determined upon. To get the best results, which means in this case the most information, an exceedingly detailed time and motion study was made of different operations on bench molding. This detailed itemizing of the operation may seem useless to many, but it is a well-known fact frequently proved by time studies that many important facts have been missed by not obtaining for analysis the seemingly unimportant small detail.

Time studies were made of men under ordinary shop conditions as they were performing the work when the investigation was first started. The type of bench used, Fig. 1, is familiar to all foundrymen. The results of these studies are shown in the accompanying table, column A.

Analyzing the work done under these conditions, three facts were impressed upon the minds of the investigators:

1.—That one of the causes for delay and lost time was due to not having the tools in the most convenient positions for handling. They were often covered up with unnecessary odds and ends, like unused patterns, extra gate pins, old cores, etc.

2.—The second cause of inefficiencies was attributed to the fact that very often the workman did not have the necessary tools and quite often those he did have were not in very good shape. Blunt draw spikes, inefficient rapping hammers, swabs, sand cans, etc., were quite in evidence when the workman was left to supply his own tools and keep them in shape.

3.—The third large item of lost time was caused by the molders doing too much unnecessary work, such as taking several small shovelfuls of sand to fill a cope or drag when one or two heaping shovels would have produced the same results.

ARRANGEMENT OF MOLDING BENCH

Studying the shop conditions, it was found best to have the benches made of the wall type, although under the greater majority of cases the portable

*From a paper read before the American Foundrymen's Association, Chicago, September 9.

†University of Illinois, Urbana, Ill.

bench over the sand heap is most economical, due to less handling of sand and molds. This molding bench, Fig. 2, was constructed with the idea of having a place for every necessary tool and all supplies, while having each located within the most convenient reaching distance. The arrangement is such that the tools cannot be placed anywhere but in the proper place, and the foreman or molder can see at a glance whether the tools are in good condition.

With a place for everything actually needed and only those tools and supplies around, the common fault of the workmen of having their benches littered up with extra tools, patterns, old cores, gate pins, etc., was done away with. The small tools, slick, trowel, gate cutter, etc., are kept in the tool tray as shown in Fig. 2. The box sets on its stand and is tilted at such an angle that the molder can see each tool and get the one needed with practically no loss of time as in searching for it on his bench. This tool box is returned to the tool room each evening when the tool room attendant sees that the tools are in good shape. If special tools are needed for a particular job, they are placed in the box issued to the molder assigned to that order.

Under the tool box is a shelf for holding a core tote board. The rammers and strike-off are kept directly in front, easy of access and when replaced they can be thrown into their holders with one motion of the arms. A wire basket holder for the sprue and riser pins is located at the back of the bench. This is a convenient position from which to obtain the pins when needed, the wire preventing the accumulation of sand as in a tight box or shelf.

The two brackets marked *A-A*, Fig. 2, are for the cope it is rolled over on the side shelf at *B*, from it. When patterns have to be removed from the cope it is rolled over onto the side shelf at *B*, Fig. 2. The dust bag and swab can holders are placed at the right of the workman for ease of access.

The riddle is kept in the rack at the right side of the bench. Located above the sand, it is never in the way at the side of the bench as in ordinary practice. From this position, sand can be shoveled into it easily and it can be picked up with less trouble than having to reach down to the floor level. This arrangement of the bench for having the tools in a definite place, easy to reach and replace, played quite a part in cutting down the average time of making molds.

PROPER TOOLS

The second item of the main causes of lost time, the lack of proper tools and tools in poor shape, is neglected in the majority of foundries because of the belief that the molders will furnish their own. One spirit level has sometimes been the common shop property among fifteen loam molders, and an enormous amount of time lost by the men in looking for this tool when needed. In bench work the shovels must not be worn too small or used with the edges turned. Much effort is wasted when using dirty shovels. In this case a tool room attendant looks after the shovels to see that the edges are in good condition and keeps the blades oiled when the shovels are not in use.

Draw spikes are inspected for sharpness, proper sized gate cutters, swabs and draw screws are issued to the men. The other small tools are looked after in a similar manner. Bell top sprue pins are used wherever possible because they eliminate time in striking off and in reaming out around the sprue hole. The use of a special wide strike-off iron, one stroke of which finishes the operation, was instituted on all this snap bench work. Straight steel bottom boards are used because of their durability. Also the strike-off leaves a smooth surface on the drag and no time is lost in bedding the board on a soft layer of sand.

The third item, extra work, led to a consideration of such things as molders taking an excessive number of strokes with the rammers, small and many shovelfuls of sand, moving too far for bottom boards, etc. One heaping shovelful of sand in the riddle was found to be all that was necessary, in the majority of cases, for both drag and cope. The use of many small shovelfuls of sand to fill the cope and drag for peining and butt ramming was replaced by the use of two and three large shovelfuls. Careful placing of the bottom boards for ease in reaching was observed. These and many other like items of information observed as standard operation methods produced quite a saving in time and labor.

Instruction cards are made for the men working

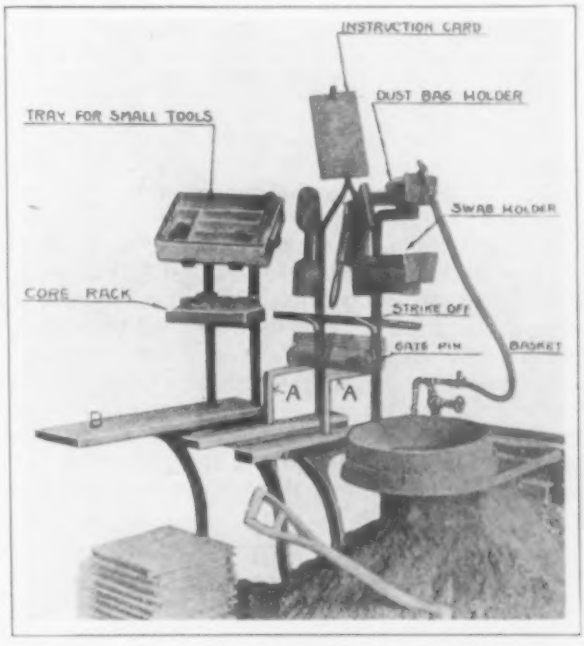


Fig. 2—Type of Molding Bench Built to Eliminate Unnecessary Motions

with different patterns as the orders come into the shop. These contain information as to the flasks to be used, special tools needed, special gating, how cores are to be set and anchored and other details generally left to the discretion of the molder. These cards are issued to the molder with his tools and work order. Being made up by the most experienced men, they insure the use of the quickest way of making with the best methods of gating, holding of cores, etc. A special place is provided on the bench for holding these cards where they can be easily read. The value of the written instruction lies in the fact that the best method of making the piece is planned out in advance of doing the work. All tools and special apparatus needed are noted and are gotten together and, when ready, the work is started and continued by the molder without the unnecessary delays usually encountered when the work is begun without any forethought being given to it. These cards relieve the foreman of having to repeat verbal instructions and preclude the possibility of misunderstanding which so often occurs. The use and writing of instruction cards impressed on the management more than any-

thing the need for standardization in tools, materials, and methods of work.

Record of Time Study

Item	A Average of studies, minutes	B Average of studies, minutes	C Average of eliminated time, minutes
1. Placing flask on bench: Setting patterns	0.18	0.18	0.00
2. Placing riddle. Fill cover patterns	0.16	0.13	0.03
3. Tuck around patterns	0.07	0.07	0.00
4. Fill drag	0.15	0.11	0.04
5. Pein ram	0.11	0.09	0.02
6. Butt ram	0.07	0.06	0.01
7. Strike off	0.16	0.06	0.10
8. Place board on drag. Bed board	0.09	0.05	0.04
9. Roll drag over. Remove board	0.09	0.09	0.00
10. Set patterns	0.23	0.17	0.06
11. Set gate. Cover with riddled sand	0.33	0.22	0.11
12. Tuck around patterns	0.11	0.11	0.00
13. Fill cope	0.24	0.17	0.07
14. Pein ram	0.18	0.12	0.06
15. Butt ram	0.06	0.06	0.00
16. Strike off	0.16	0.06	0.10
17. Remove sprue pin	0.07	0.07	0.00
18. Lift cope. Roll cope	0.30	0.30	0.00
19. Clean gate. Remove patterns from cope. Repair cope	0.80	0.30	0.50
20. Rap and draw patterns from drag	0.47	0.40	0.07
21. Vent for cores. Patch	0.40	0.20	0.20
22. Set cores	0.17	0.15	0.02
23. Dust drag and cope	0.12	0.10	0.02
24. Close cope	0.31	0.25	0.06
25. Remove flask	0.15	0.15	0.00
26. Set flask on floor	0.16	0.16	0.00
	5.34	3.83	1.51

The results of column A of the table are the averages obtained on the making of molds in ordinary practice while the subject was first being studied. Column B gives the average time of making molds similar to those of column A, but made on the well arranged bench while instructions as to striking off, filling riddle, shoveling and ramming were followed. The savings of time on the different items seem very small. These small savings on each mold total to an astonishingly large amount. One minute less a mold, if the molder is putting up 80 molds a day, means that each day an hour and twenty minutes will be gained for productive labor per man. For 10 men it amounts to a saving of $1398 for a year.

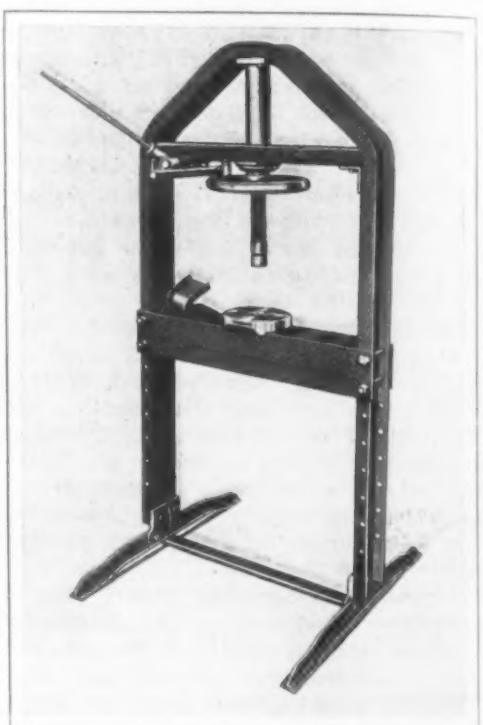
A Recent Development in Iron Ore Cars

The accompanying illustration shows a gable bottom car of late design built by the Orenstein-Arthur Koppel Company, Koppel, Pa., for use in iron ore mines of Michigan and Minnesota. To dump this car, the hand levers at the end of the car are released, and the reverse moment of the hand levers locks the door. It appears that one of the greatest difficulties in the operation of cars is to make sure that the workmen pay proper attention to oiling the bearings, as it is difficult to get at bearings on cars of this type and they are neglected. To overcome this trouble, an oil cup was provided at each end to feed oil through piping to the journal boxes. The castings of the cars are of manganese steel.

Iron Ore Car with Oiling Cups at Each End

Portable Press for Machine Shop Work

A 20-ton press for such work as straightening axles and shafts, pressing wheels on and off shafts, compressing leaf springs for assembling, broaching holes, cutting key-ways in pulleys and for general bending and shaping of material like angles and bars, was shown at the Foundry and Machine Exhibition at Chicago last week. It is manufactured by the Weaver Mfg. Company, Springfield, Ill., and as will be noted from the accompanying illustration, has a frame of one piece made up of 5 x 2-in. channel steel without joints; a hand wheel, 15 in. in diameter, for relatively light work, a lever when maximum pressure is desired. The lever is connected by means of a link to turn the hand wheel, with a ratchet-like arrangement, and the handwheel of course drives the central screw shown, which is 2 in. in diameter with a 3 pitch Acme thread.



A 20-ton Press for Garage and Repair Shops

The bolster to take the pressure developed by the movement of the screw, and which therefore carries the plate on which is held the work to be straightened, is adjustable for hight as shown in the illustration. The maximum adjustment is 48 in. between the plate and the bottom of the screw. The weight of the screw rests upon bronze thrust bearings, which allow the wheel to move the screw up or down quickly. The screw has a range of movement of 12 in. The distance between the uprights of the frame is 32 in., sufficient to take automobile wheels. The floor space taken by the machine is 36 in. square and the weight is 425 lb.

The largest labor union in the Berlin district, Germany—that of the metal workers, with 88,000 members—reports 11,000 unemployed, although some 16,000 members are with the troops in the field.

Softening Water at Works of Alan Wood Iron & Steel Company

Among improvements made by the Alan Wood Iron & Steel Company at Swedeland, Pa., has been the installation of a water softening and purifying system for its boiler feed water. The boiler plant as now constituted consists of two sections, the older installation of four Wood horizontal tube boilers and thirteen Stirling boilers, all 200 hp. each, operating at 120 lb. pressure, and the new boiler plant of six 600-hp. Babcock & Wilcox boilers, operating at 150 lb. pressure. All boilers are fired with gas from the furnaces.

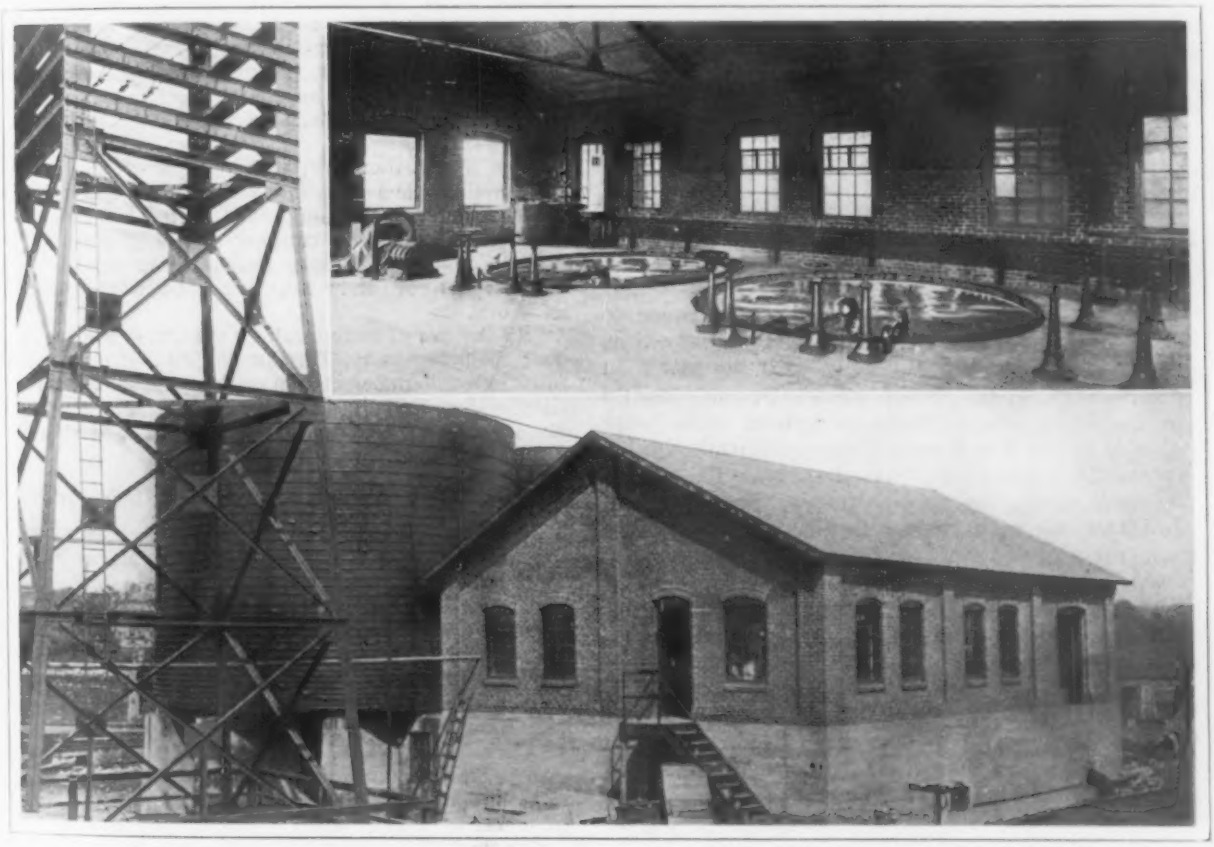
The boiler feed water is taken from the Schuylkill river, and owing to its hardness, it was recognized that the maintenance of the high efficiency required would necessitate the purification of the water for the boilers to keep them free from scale and corrosion. The problem was one of clarification as well as softening, and any apparatus installed had to combine means for removing suspended matter as well as to insure accurate and elastic treatment for removing soluble scale forming impurities. Sedimentation, it was decided, could not effect the required clarification especially in a moving water, so filtration was a prime requisite.

The intermittent We-Fu-Go system, built by Wm. B. Scaife & Sons Company, Pittsburgh, having a capacity of 10,000 hp., or 40,000 gal. per hour, was installed. Provision was made to double the capacity in the future. In this system, a definite quantity of water is treated at all times with known and pre-determined amounts of reagents, depending on the variations in the quality of the supply or the rate at which the water is used.

The river water reaches the LeBlanc condenser of the power plant through a concrete conduit and discharges from the hot well by a similar conduit. From the bottom of the hot well the water is delivered into the reaction and settling tanks of the purifying system by means of a De Laval turbine-driven centrifugal pump. Oil carried by the hot well water is removed by the treatment so that the purified water may be used hot, obtaining the advantage of its temperature for feed water. The reaction and settling tanks are alternately filled and emptied. The reagents are introduced by means of a pump from a small mixing tank in the operating house. The reagents are mixed with the water by mechanical stirring devices, consisting of a specially designed paddle driven by an electric motor located in the operating house. The paddle stirring device at the same time stirs up from the bottom the sludge of preceding purification. This mixture of sludge hastens the chemical reaction and causes the new finely divided precipitate to form large woolly flakes heavy enough to settle quickly as soon as the water stops moving.

After treatment, stirring and subsidence, the water flows from the reaction and settling tank through a floating outlet pipe, delivering the water from the top surface to two mechanical gravity filters, filled with crushed quartz. These are provided to remove the last trace of suspended matter and they deliver the softened and filtered water into a large clear well. When the sludge has accumulated to about half the hight of the paddles, it is stirred up with the water remaining in the tank and with the floating outlet pipe at its lowest position, is flushed out through a sewer connection. The filters are washed by reversing the flow of water through them, using softened water direct from the reaction and settling tanks.

The apparatus is handled from within the operating house, containing the filters, special appliances and storage for the reagents. The main operating valves are located in a pipe gallery below the operating floor. These are fitted with extension stems, with universal couplings and floor stands. All the

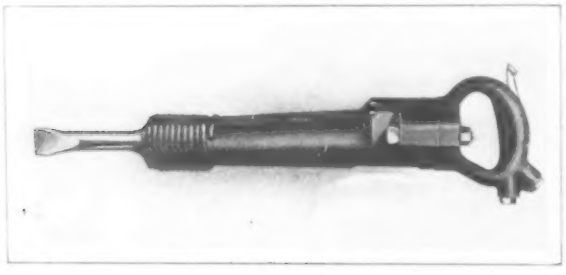


The Inside and the Outside of the Water Softening and Purifying Plant of the Alan Wood Iron & Steel Company

floor stands have a brass plate attached, giving the purpose of the valve and line in which it is located. The hight of the water in the treating tanks is indicated by mercury gages. Electric alarms indicate full and empty reaction and settling tanks. The flow of water from the reaction and settling tanks to the filters and from the filters to the clear well is automatically controlled by float valves. The clear well occupies the entire area of the operating house. The foundations of the operating house serve also as walls for the clear well and as supports for the filters. The water purifying system is handled by the water tenders, so that no additional labor in the operation of the boiler plant was involved in this installation.

A Rivet Buster

While assembling structural members, sheet metal work, riveted pipe, etc., either in the shop or in the field, it often occurs that rivets must be removed after being driven into place, in order to permit of some modification of construction or because they were improperly driven or incorrectly



The New Rivet Buster

placed. A cold chisel and sledge is often used to knock off the rivet head. This method, however, is slow and awkward and may actually result in injury to the work. When pneumatic instruments are available, the common procedure with large rivets is to cut a slot across the rivet head, similar to the slot in a round-headed screw. Then with two light blows, one on either side, the rivet head is broken off with little difficulty. Where rivets must be removed only occasionally, however, the trouble of keeping a pneumatic chipping hammer always at hand for only occasional use precludes its more general employment under such circumstances.

Appreciating these conditions, the Ingersoll-Rand Company, New York City, has brought out what it calls the Little David rivet buster, to be used with the regular line of Little David pneumatic riveting hammers. The end of the device is similar to that of the regular rivet set. The rivet set is quickly removed and the rivet buster is inserted in the nozzle of the hammer. It is designed so that it can be held in place by the safety retaining spring, a recent improvement on the Little David riveters, to prevent the accidental ejection of the set or chisel while the tool is in operation. The buster is also used for removing burrs or other defects from the metal and is of such a small size that it can be carried in the workman's pocket ready for use when needed.

The American Blower Company, Detroit, Mich., manufacturer of Sirocco multi-blade patented fans, is contributing to the general stock of information regarding the great war by distributing an excellent map of Europe which has on the reverse side a great deal of data regarding the fighting strength and resources of the contending nations.

Hammer Piston Rods of Vanadium Steel

Possibly no other machine part is subjected to greater vibratory stresses, tending to cause fatigue of the metal and resulting failure, than steam hammer piston rods. In such service the dynamic strength or anti-fatigue properties of the metal are put to the severest test. Frequent failures of such rods are a common source of trouble and expense in all forge shops. As a solution of the problem these shops are turning to the use of heat-treated alloy steels. Because of its high dynamic strength, heat-treated vanadium steel has proved to be particularly adapted to the purpose, as shown by results reported by forge shops which have used vanadium steel in this connection.

According to information collected by the American Vanadium Company, Pittsburgh, Pa., the A. O. Smith Company, Milwaukee, Wis., which operates 20 hammers ranging in capacity from 1000 lb. to 16,000 lb., began trying out heat-treated vanadium steel rods about two years ago and now all its hammers are equipped with vanadium steel rods. It is the company's experience that the life of a heat-treated chrome-vanadium piston rod as compared with one made from regular carbon stock is at least three to one.

Similarly results are reported by the Obenberger Drop Forge Company, Cudahy, Wis., which began to try out vanadium steel for this purpose about four years ago. Previously it had been using 0.40 per cent. carbon steel. A heat-treated chrome-vanadium steel rod was applied to one of the hammers on April 17, 1910. Operating continually night and day, it lasted until November 1, 1911, giving a service of over a year and a half. The rods were 5 in. in diameter and 94 in. long over all, with a head having a diameter of 12 in. and a 4-in. face.

The Studebaker Corporation reports that in trials of vanadium steel rods, a rod of this material has been in service 18 months and is still in first class condition.

In a 4000-lb. drop hammer, the Page-Storms Drop Forge Company, Chicopee Falls, Mass., reports that a heat-treated vanadium steel rod has proved highly satisfactory.

By the use of heat-treated vanadium steel the Flannery Bolt Company, Pittsburgh, Pa., has minimized failures of hammer piston rods. Its equipment consists of five 1000-lb. steam hammers. The first vanadium steel rod was applied a year and a half ago and is still in service.

Carbon Hearths for Blast Furnaces

The Proceedings of the Cleveland Institution of Engineers, England, contain the following contribution from Dr. J. E. Stead regarding carbon and firebrick hearths in blast furnaces:

"Bolckow, Vaughan & Co. have had a carbon hearth put in one of their furnaces, and after 10 months' service it has worn away to the extent of a little more than a foot. Mr. Scott has assured me that the small initial erosion of about 1 ft. in 10 months is not more than one might expect, and states that the furnace has been in work continuously since the hearth was put in, and that during the last three months no further erosion has taken place. The slight wear of this carbon hearth is probably partly due to the position of the tuyeres and to the scouring action when clearing the furnace of the last traces of molten metal at the finish of each tapping. J. S. Hollings, of the Brymbo Iron & Steel Company, in a communication on carbon hearths, states the opinion that the position of the tuyeres has a considerable effect on any hearth, but that in their case the carbon hearth has stood better than the firebrick hearth under exactly similar conditions. In this furnace, which has been in blast 5½ years (the whole time on basic iron) the hearth has never been more than 18 in. below the tap hole. The carbon block hearth is now within an inch or two of its original level, as the tap hole was laid out 12 in. above the carbon hearth to start with. Sometimes a firebrick hearth loses very much more in the first week or two than this carbon hearth has done in more than a year. Judging by the fact that the carbon hearth of this furnace has not worn at all during the last three months, it gives promise of a long life."

The Foundrymen's Conventions in Chicago

Growing Movement Looking to a Coalition of the Three Associations into One Organization—Discussion of the Papers

The 1914 foundrymen's conventions held in Chicago September 7 to 11 passed into history reflecting the influence of new ideas and new policies of co-operation. A programme of exceptional technical and practical interest was developed. The division into sections gave to the meetings a logical procedure and secured for the topics discussed an unusual attendance and sustained interest. Out of the co-operative endeavor, there is an increasing probability that the three associations, the American Foundrymen's Association, the American Institute of Metals and the Associated Foundry Foremen, will each find their own best interests served by coalition in the one organization. To provide for this contingency suitable amendments to the constitution of the American Foundrymen's Association were recommended by a committee appointed. In connection with the programme there is still work to be done in devising a way to make the number of papers, their presentation and discussion fit the time available. The following covers leading features of the meetings:

The American Foundrymen's Association

The feature of the opening session on Tuesday morning was covered in the report appearing in *The Iron Age* September 10. In the afternoon meeting of that day of the American Foundrymen's Association the report of the secretary-treasurer was read. Particular attention was called to the recent increase in membership, which now totals over 800 and promises an early reaching of the 1000 mark, toward which the association is striving. A report of the executive committee, submitted in printed form, was not read but referred to as a complete record of the executive committee's meetings since the last convention.

LIFE AND PRODUCTIVITY OF GRINDING WHEELS

Of the papers scheduled for the afternoon session, those where the authors were absent were read by title only. The paper by R. G. Williams, Norton Company, Worcester, covering the question of safety in connection with grinding wheel operations, and Thomas D. West's paper, relating his work in connection with the driving back of the saloon, carried over into the afternoon. Carl Frederick Dietz, Worcester, Mass., gave a brief abstract of his paper on the selection of grinding wheels for the foundry, calling attention to a need for selecting abrasives in accordance with the kind of material upon which the work is being done. To secure the best results from grinding wheels, care must be taken in selecting a wheel of the proper hardness and with a suitable grain size for the work at hand. The life and productivity of a wheel made by a good abrasive material is directly measured both by the grain size and the strength with which the grains are held together. The author called attention to the necessity of grinding at a constant speed. Frequently the wearing of the wheel is not taken into consideration and the decreased diameter, carrying with it a decreased peripheral speed, fails to give the results expected both as to grinding and life of the wheel. The speed at which the wheel is driven ought to be adjusted to the wear of the wheel so that the grinding speed can be held constant. Mr. Dietz discussed the kinds of material best adapted to the grinding of castings of various kinds—steel, malleable and gray iron.

MAKING CAST IRON HIGH IN OXYGEN

The paper by J. E. Johnson, Jr., on the subject "A New Material for High Grade Castings," was presented on Tuesday afternoon instead of Thursday and described the development of a cast iron of exceptionally desirable property by the introduction of oxygen in unusual proportion. The iron produced by Mr. Johnson is a strong, close grained, smooth iron with excellent chilling properties. Reference was made to an analysis and test of this iron made by H. B. Swan of the Cadillac Motor Car Company, Detroit. The analysis was as follows: Combined carbon, 1.85 per cent.; graphitic carbon, 2.65 per cent; manganese, 0.26 per cent.; phosphorus, 0.362 per cent.; sulphur, 0.039 per cent.; silicon, 1.25 per cent. The test showed a transverse breaking strength of 4505 to 4875 lb. and a tensile strength of 34,800 lb. Mr. Johnson pointed out that it is true where charcoal iron has shown particularly desirable properties, the oxygen content runs high and that poor iron in addition to running high in carbon contains less than 0.01 per cent. oxygen. In fact charcoal iron has enjoyed its prestige over coke iron not so much because of low sulphur as of high oxygen. The operation of adding oxygen to the metal is performed in a Bessemer converter in which it is possible to remove all of the silicon without affecting the carbon. This is necessary before the oxygen can be introduced. Then by introducing metal direct from the cupola the silicon content of which is known, the silicon in the blown metal may be made whatever is desired without affecting the oxygen contained. This metal retains its properties when remelted either in the cupola or air furnace, losing them only when the metal is burned in excessive heat just as any cast iron is made worthless from the same cause.

NEW TYPE OF FOUNDRY CUPOLA

Following Mr. Johnson, G. R. Brandon, Whiting Foundry Equipment Company, presented a design for a new type of foundry cupola. For this new design Mr. Brandon claimed easier operation, greater accessibility and a generally economical management, making the cupola especially adapted to severe service requirements for large capacity and heats of long duration. The cupola is carried on a framework of I-beam girder construction. Instead of the ordinary type of wind box, a wind belt is substituted and an individual glass box with a sight glass is provided for each tuyere. The discussion following the presentation of the paper indicated some doubt as to the uniformity of air-blast pressure with the arrangement suggested by Mr. Brandon, and a disposition to question the value of changes that brought with them no decreased cost of melting or similar substantial advantage.

The afternoon session concluded with the report

of the committee on industrial education by Paul Kreutzpointner, Altoona, Pa. The report was a résumé of the progress of industrial education and discussed corporation schools and their functions; continuation schools and the relation of these to public schools and outlined the courses of study in their relation to each other. The other papers on the afternoon programme in the absence of their authors were read by the title only.

THE COST CONGRESS

At the Wednesday morning session held at the Stock Yards Inn, the importance of the question of cost was demonstrated by the most liberal attendance recorded at any of the sessions. The opening address by F. J. Stephenson, cost expert for the National Association of Stove Manufacturers, was an exhortation to the foundrymen that they make a practice of knowing their costs and that they adopt some uniform system.

The facts contained in the paper by A. O. Backert, secretary of the American Foundrymen's Association, concerning the prevailing practice in estimating the selling price of castings were, he stated, secured from replies to 10,000 letters sent to the members of the association and the leading jobbing foundries of the United States. Eleven questions intended to bring out the details of price figuring were asked. The answers indicated a general appreciation of the desirability of making proper estimates, but no standard methods are in practice and while approximately half of the foundries operate estimating departments, fully as many are governed in the price they name by information they are able to secure regarding the price the job is likely to stand, using their own costs as a last resort. The naming of prices appears to vary with the competitive situation rather than with the cost. The author suggested a continuation of the investigation in the hope that a standard formula for estimating selling price might be deduced.

The paper covering the revision of the American Foundrymen's Association standard cost system was presented in decidedly interesting fashion. Illustrating the general principles of cost accounting, Harrington Emerson laid emphasis upon the isolation of each separate item of cost and the permanent distinction of that item by placing it for record upon a separate card of distinctive color. The principle of classification, if carried out, will suffice as a basis for an ordinary accountant. Mr. Emerson also made the point that the determination of cost demands not only the setting down of actual prices paid, but the notation on the same card of real value, whether higher or lower. Carrying out these elementary suggestions into the form of a working system, J. K. Mason, New York, presented by means of an illustrated chart a method of foundry cost analysis.

In the discussion following, Mr. Collins of the Aluminum Castings Company, told of the bonus system in operation at the Detroit plant of the company, described in *The Iron Age* September 3. Their system embodies the differential bonus plan and has been conducive to a largely increased production. A standardization table has also been worked out showing standard times for various operations involved in the making of the molds. From this table, by grouping operations, it is possible to set a time for a job and put them on the bonus without a time study. Mr. Miller stated that the practice in their foundry provided a cash payment to molders for suggestions, the amount of the payment being proportionate to the percentage of improvement. At another plant where the straight bonus system is employed, the bonuses are withheld for three months and at the end of the time the accumulation is given to the employee in a lump sum. This plan has avoided the dissipation of the extra money from week to week, a very common failing so long as the amounts of the bonus were comparatively insignificant.

R. E. Kennedy, University of Illinois, read the paper, printed elsewhere in this issue, on the elimination of waste motion in bench molding, in which were given the results of extensive time and motion studies in connection with bench molding. Three causes for waste of time were found to be conspicuous, tools inconveniently placed for handling, a lack of the necessary tools in good working condition and the performance of unnecessary work by the molder. The paper presents an analysis of these losses and suggests an improved design for a molders' bench.

LOCATING A NEW FOUNDRY

The paper by L. L. Anthes, Anthes Foundry, Ltd., Toronto, dealing with locating a foundry in new territory, was not read but only briefly referred to by the auther. It is an enumeration of the numerous questions which must be given consideration in solving such a problem and may be termed a guide book which the inexperienced should follow in deciding on the choice of site. Mr. Anthes in his remarks called attention to the importance of plant extension at this time when the European war, the opening of the Panama Canal, and the possibilities of South American trade give promise of greater demands upon our manufacturing capacity. He said that it is no more than logical to assume that an upward tendency in business must follow the long period of depression. He laid emphasis upon the development of by-products, and the opportunity which that development offers in industry, citing Germany's great commercial prosperity, as largely due to the wonderful manner in which she has developed the by-products of industry.

The morning session closed with a reading of the paper by Thomas D. West on, "The Evils Embodied in Specialization." The author urged that agencies be created to develop and foster the conviction that the skilled and efficient workers in the mechanical trades are justly entitled to wages far in excess of those paid to clerks and others engaged in work that involves very little sacrifice of time in the apprenticeship period.

MALLEABLE IRON

Papers presented at the afternoon session on Wednesday devoted to the consideration of malleable iron practice were productive of considerable discussion. Concerning the methods described by Harrold Hemenway, H. W. Cooper Saddlery Hardware Mfg. Company, Moline, Ill., for calculating mixtures for malleable cast iron, Enrique Touceda gave it as his opinion that the process was a roundabout one and much less simple than other methods generally used. To this Mr. Hemenway replied that while the explanation of the manner in which the method was derived might seem long, its application involved but a few minutes for any mixture. Emphasis was laid by Mr. Touceda on the necessity of considering carbon, which has the most important effect on the fluidity of the metal, whereas the method described in the paper seemed largely devoted to the determination of silicon. It was claimed that a good metal depends upon the preservation of a proper ratio of the elements, an instance of good castings being cited where the sulphur ran 0.13 per cent. and silicon 0.25 per cent. J. P. Pero,

Missouri Malleable Iron Company, East St. Louis, amplified this opinion by including manganese and sulphur as being just as essential to the calculation as silicon.

The paper by Enrique Touceda, on the strength of malleable iron after the skin is removed, proved most interesting. The investigation covered by the paper was suggested by the prevalent opinion, held to be erroneous by Mr. Touceda, that the only portion of a malleable casting having any ductility is the skin of the casting. After discussing the cellular organization of malleable iron to illustrate the structural likelihood of ductility throughout the metal, Mr. Touceda explained why the ordinary test bar might give rise in elongation tests to a misinterpretation of the results shown. To demonstrate more thoroughly the contention as supported in his paper, he described a series of physical tests using a wedge-shaped test bar. By a comparison of two wedges of equal size, one with the skin machined off and the other as cast, the effect of the skin upon the ductility of the casting is clearly demonstrated.

Mr. Pero's paper was a general description, devoid of technicalities, of the process of making malleable iron and the general equipment necessary. Following the reading of the paper, President Howell asked concerning the use of malleable iron for stove castings, to which Mr. Pero replied that they were practically indestructible, the malleable castings being much less susceptible to the action of heat than gray iron. Replying to Mr. Howell's question as to whether malleable might be used for stove grates, Mr. Pero referred to the frame casting and including the water-backs and fronts; that malleable castings will not warp within the range of the annealing temperature or approximately 1500 deg.

Mr. Larue asked concerning the statement that malleable iron is poured at a higher temperature than gray iron, which question developed a difference of opinion and a discussion of the proper form of pyrometer for accurately determining the temperature. The opinion finally prevailed that gray iron is poured at a temperature about 300 deg. above malleable, although the temperature varies widely, depending upon the section of the casting to be poured. The radiation pyrometer was considered to have given service in the experience of several, but for the most accurate work the use of a platinum-couple pyrometer was recommended.

Mr. Benedict inquired regarding the safe limit for manganese and what relation it should bear to sulphur in malleable casting. Mr. Touceda replied that an absolute ratio was essential and that safe limits might vary from 0.2 to 0.35, depending upon the sulphur. Mr. Larue cited instances of castings varying between 0.23 and 0.38 in manganese which annealed satisfactorily, while a casting running 0.60 failed to do so, the sulphur in each instance being under 0.05. Answering Mr. Touceda's opinion that malleable castings were being used in increasing number in the manufacture of automobiles, Mr. Swan replied that he believed automobile manufacturers were finding steel forgings a more desirable substitute for the reason that having once made dies the forgings contributed to the standardizing of the product.

SESSION ON STEEL FOUNDRY PRACTICE

The morning session on Thursday was devoted to the manufacture of steel castings, with Vice-president R. A. Bull presiding. The first paper, by W. L. Morrison, Welland, Ont., a general treatise covering the general adaptability of the electric furnace to foundry purposes, was discussed by Mr. Kreutzpointner, who emphasized the desirability of castings made from electric steel because of the dead melt procurable in the electric furnace and by F. T. Snyder, Chicago, whose discussion will be printed with a printing in these columns of the paper itself.

The unusual results obtained from gannister tuyere linings, as described in a paper by John Gregson, Sivyer Steel Casting Company, Milwaukee, entitled "Side-Blower Converter Practice," were criticised by A. F. Blackwood, as representing faulty practice rather than an unusual record. In Mr. Blackwood's opinion it is a first essential to maintain the tuyeres in normal condition by daily repairs rather than to run an endurance test on the lining until it is unfit for service. It was also explained by Mr. Gregson with reference to the practice in their foundry of transferring the hot metal in hand shanks that it remained hot enough to pour very small castings. Concerning the proportion of clay to be used with the gannister as a bond, Mr. Gregson explained that the more clay used the less refractory the lining, the idea being to use enough clay but no more, perhaps from 5 to 10 per cent.

Mr. Blackwood's paper, covering the general melting characteristics of acid steel for castings, described at some length all of the ordinary processes of making steel. The closing portion of his paper was devoted to the electric furnace. Concerning this reference to the electric furnace, Mr. Snyder suggested a correction of the impression that his furnace was adapted to small heats only. In comparison with an output of 220 tons from an open-hearth furnace in 24 hr., they had secured such a tonnage from a Snyder furnace 5 ft. in diameter, now in operation, as would warrant the statement that a similar furnace 6 ft. in diameter would melt 190 tons in 24 hr. Mr. Blackwood said it seemed impossible to him that a furnace with but one electrode could radiate a sufficient amount of heat to melt that tonnage of iron. Mr. Snyder's reply was that the heat comes from the arc, the furnace in question affording an especially long arc, while the arc itself may be comparatively cool, which fact also insures a long life for the furnace roof.

The report of the committee on steel foundry standards will be given in these columns next week. Following its reading, motion was made that the report be accepted and the recommendations adopted for trial. Dudley Shoemaker, the chairman, explained that the standardizing of the nozzles would not create any inconvenience as regards the stoppers, for the variations in the stoppers are not essential. He also explained that manufacturers of nozzles have been supplied with blue-prints showing the standard adopted and that they are prepared to furnish them on request. Mr. Ploehn suggested that further suggestions by the members of the association be taken up through the committee so that they may be considered in the light of investigations already made.

GRAY IRON CASTINGS

The principal discussion at the Thursday afternoon session devoted to gray iron was evoked by the paper describing a cast iron of unusual structure presented by K. W. Zimmerschied and read by Mr. Swan. The fact that an iron running over 3 per cent. in silicon should give a transverse test of 4500 lb. was considered particularly astonishing, the explanation offered being that the unusual properties were attributable to the high sulphur content which made for great strength. This iron has a

(Continued on page 687)

ESTABLISHED 1855

THE IRON AGE

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EDITORS

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The Proposed Freight Tax

A curious proposition brought forward by the Ways and Means Committee of the House of Representatives was dropped at a House caucus on Tuesday evening. This was the inclusion of a tax on railroad freight among the items by which it is proposed to raise additional revenue to supply the deficiency in receipts from customs duties caused by the interruption to our commerce through the European war. It was a novel suggestion, contemplating an excursion into a new field of taxation, and was so strikingly original that credit must be given to its sponsor as possessing inventive genius.

So many methods of providing additional revenue exist that it is difficult to see why such a proposition as this should have been considered. The deficiency in the national revenue is not likely to continue for any considerable time. Thus any measure to overcome this deficiency needs to be merely temporary and it should be of such a character that it will not involve any important business considerations and can be discontinued at any time when the emergency shall have passed. The method several times tried by our Government of imposing stamp taxes is an excellent one, easily put in force, and readily borne by the people. No particular fault can be found by the great mass of the people with an advance in the internal revenue taxes on distilled liquors and beer, but a stamp tax on checks, receipts, and possibly on some articles of quite general use would perhaps be better than a heavier tax on liquors. The suggestion has been made by one member of Congress that immediate relief could be secured by advancing first-class postage. It might not be necessary to double the present rate of such postage but to increase it 50 per cent. This would make the unit of first-class postage 3 cents instead of 2 cents. It would add so heavily to the national revenue that alone it would almost bear the burden of supplying the deficiency.

The proposition to tax railroad freights is utterly without reason. It would prove to be a highly objectionable measure. Such a tax would undoubtedly affect the price of many articles of general consumption, as it would be passed along to the consumer, being taken as the pretext for a general advance in prices. At this time, when every effort is being made to reduce the cost of living, such a tax should not be imposed unless required by the direst extremity. On some products—and pig iron is a conspicuous example—which are sold by one class of manufacturers to another class, the burdens of the producer in this time of dragging markets and of losses rather than profits would be increased by the amount of the tax.

Further than this, the imposition of such a tax would have complicated the general railroad situation. The necessity exists, as admitted by President Wilson September 9 to a committee of railroad executives, of some measure affording relief to the railroads of the country at this time of contraction in railroad revenues. The proper way in which to afford such relief would be by giving them permission to advance their freight rates. A petition asking for a rehearing of the 5 per cent. advance rate case was filed with the Interstate Commerce Commission on Tuesday in behalf of the 112 railroads comprising 35 systems in official classification territory. It is to be hoped that the hearing will be granted and that an early and favorable decision will be rendered. The railroads are in practically as serious a condition as the Government so far as revenues are concerned and imperatively need to have their interests considered. It would have been most unfortunate indeed if such a complication had been injected into the situation as the imposition of a tax on freights.

Cyclical Depressions—An Obituary

We hasten—to make up for lost time—to write the obituary of the cyclical principle in industrial depressions. If there ever was such a thing it has been knocked topsy turvy, and as it would require many years to furnish a basis for the tracing of any new cyclical principle the idea may be regarded as dead for the present generation.

The more common view as to the cycle was that it is one of 20 years (1873 to 1893), and in 1912 the question was much discussed whether there would be a panic in 1913. From the Jay Cooke panic of September, 1873, to the financial panic of June, 1893, was a trifle less than 20 years. Thus when the European war broke out the theory had already failed to make good, unless indeed it be argued that the material was there for a panic, but so many believed in its prospective advent that preventive measures were taken and proved successful.

Most wars have been followed by a sort of feverish activity and expansion, usually culminating in an inflation and sudden collapse. The magnitude of the war determines largely the extent and duration of the movement. A large war is so destructive that the tendency to expansion cannot

assert itself, and this European war, of unparalleled and cruel destruction, can hardly be regarded as likely to be followed soon by any industrial expansion of moment in industrial activity in or near its seat. All things, however, will date from the war. There must eventually be a period of recuperation; but the destruction of life and property promises to be so vast that it would surely be many years before natural and healthy recuperation could develop into dangerous inflation. Clearly a new rhythm in the industrial fluctuations over the years and decades will be established.

To return, however, to our scheduled panic which did not come: The war has proved absolutely the contention in many quarters earlier in the present year that so much was a panic feared for last year that ample precautions were taken, so that in 1914 the last thing that could occur would be a panic. Industry and finance have not only withstood all the pressure that might be conceived, but they have withstood in addition an inconceivably great disturbance. One must not overlook the fact that a contingency seriously considered in high financial circles in the past two years has been a breaking out of serious hostilities in Europe. That has been no secret; but it is quite certain that the worst imagined did not come up to the terrible reality we now endeavor to grasp. The strain, greater than was imagined possible, has been well borne, and the present industrial depression is less disturbing than would be the case had there not been this showing of strength in the foundation of our financial and industrial structure.

Steel Consumption and "Financing."

It is frequently said that an effect of the European war upon the steel market has been to stop the financing of new projects, whereby market activity in steel has been reduced. Unfortunately no very definite line can be drawn to show what is new financing and what is not. Even with absolutely new projects, as distinguished from extensions, there are cases in which the money is to be borrowed and other cases in which the capitalist is investing merely his own funds. Going down the line of financing or borrowing money, one may reach the region in which the operation is merely that of floating commercial paper, as when a machine shop buys new machinery, paying in part by funds representing past earnings and in part by funds raised from paper to be met by prospective earnings.

If there were a definite line of demarkation between expenditures for steel products which are the result of the so-called "financing" and expenditures which are made in the ordinary and habitual conduct of business, it would be possible to reach at least a rough idea as to the volume of business respectively attributable to the two classes of purchases, but with no such division possible the quantitative study becomes impossible.

Seeing, however, how far the ramifications of financing may extend, it may be concluded that at no time has financing ceased entirely, even for a period of a few months. In times of depression even purchases for strictly current requirements are omitted, and stocks are drawn upon or consumption is entirely discontinued. Nevertheless at no time has the production and shipment of steel products dropped, for a period of even a few months, to a level less than 50 per cent. of the record high tonnage previously reached; and the plain inference is that financing in its broadest meaning never ceases absolutely. It is not at a full stop now, and will not be in the future. There can be a great decrease for a period of a few months, and a complete stoppage, possibly, in a few particular items, but that is all. A statement, therefore, that buying for "current consumption" continues, but buying against projects that must be financed is stopped cannot prove a correct one under careful analysis. Least of all can a war far beyond our borders be regarded as an occasion for the cessation of all financing. It may occasion a complete rearrangement of industrial activities, and perhaps for a time a net loss in the sum total of all activity; but in some directions at least there must be a stimulus, and it is therefore inadvisable to reach any general conclusions as to the precise effect which the timidity of capital will have upon steel consumption even during a period of a few months.

Improvement in Housing Workmen

The State of Pennsylvania, through an act passed by its last Legislature, contemplates a more comprehensive scheme than has as yet been instituted for the improvement of the people. One of the strong criticisms made against industrial communities has been the bad condition of many of the houses which are occupied by the wage workers. Some of the cities of that State have their own housing bureaus, but by the act referred to the commonwealth will be able to undertake correction in communities where sanitation and proper living accommodations have been ignored. A Bureau of Housing is to be provided as a branch of the State Department of Health. The act creating this bureau made no appropriation to put this special feature into operation, it being understood that the officers of the Department of Health should devise a plan which, owing to the magnitude of the work to be done, would take some time in laying out the preliminaries. An appropriation will then follow.

The act provides that the bureau shall investigate the sanitary conditions of tenement, lodging and boarding houses and when these conditions are found to be a menace to the occupants the bureau has power to condemn such houses, notifying the owners with regard to the unsanitary or overcrowded conditions prevailing, and specifying the changes or alterations to be made for the purpose of relieving the objectionable features. Provision is made for a court review, all owners or agents having 10 days in which to file an appeal. The court has authority to name viewers, and its act is to be final as to enforcement or modification of the order. Failure to comply with the order is to be followed by prosecution, and conviction involves a penalty of $20 a day for failure to obey orders or imprisonment, as the court may direct. Denial of a right of entry to bureau agents entails a fine of $50 to $100 or 60 days in prison.

Such an act as this is probably much needed in

certain sections. Owners or operators of iron and steel works are frequently unjustly accused of improperly treating their work people when visitors observe the bad conditions existing in some of the houses occupied by their employees. These houses are usually owned by persons having no connection whatever with the iron or steel works in the vicinity. The houses are built with the view of getting the largest return on the money invested, and their sanitary conditions are completely neglected. Opprobrium then rests on the proprietors of the works, but they have no power over the property owners. The best that can then be done is to erect good houses in some adjacent section and rent them to the work people. This, again, has its objectionable side, as an iron or steel company erecting houses for rent is then charged with endeavoring to monopolize the business of the locality. It appears to be well, therefore, that the State should step in and exercise authority over the houses which are occupied by working people and endeavor to surround the inmates with something of comfort and give them conditions which are more likely to be healthful. The experiment to be tried in Pennsylvania will undoubtedly be watched with interest by employers in other States.

CORRESPONDENCE

Why Not Help the Pig-Iron Men?

To the Editor:—If the Government at Washington is passing around the pie, why can not the pig-iron men of the country have a slice? The cotton growers of the South, with the exception of a section now and then afflicted by the boll weevil, have had season after season of prosperity, yet now, when they have the prospect of the first bad market in many years, they are calling upon the Government to help them and apparently the Government is willing to go a long way toward financing the crop.

In Congress the South does not lack able advocates to present the cause of cotton. They may be right and they may be wrong. I am not discussing that phase of the matter. The silver men, who are able to rally the entire West to their help, have already carried their point and the Government has arranged to tide them over the present trouble. It is a little unfortunate that the canned salmon industry is so intensely local, being confined to a few Congressional districts in the extreme Northwest and to Alaska where votes don't count. If there were salmon in the silver districts of the West, without doubt that industry would have been able to have arranged for its relief by a Government inclining more and more toward munificent paternalism.

The copper men, being in trouble like the others, are asking the Government to help. There is no reason why the Government should not help them. It is a shame that our cents are such little bits of pieces. We ought to coin cents in the size and shape of the big old English pennies, or so as to make more of a market for copper. A cent might well be made a little larger, say about the size of one of these thin modern watches that are so fashionable. That would put hundreds of thousands of tons of copper in circulation with hardly an effort. Besides, a coin of that size could be made so much more ornamental than our dinkly little cents which lack artistic beauty and are a nuisance anyhow, because of their smallness.

The tobacco men are thoroughly organized. They have tremendous Congressional influence. There is no logical reason why, if cotton should be helped, they should not be assisted. The more the merrier, in fact. It is to be noted, however, that tobacco has been in good demand and at fair prices for a number of years, and should there be difficulty in marketing the present crop the tobacco men are fairly fortified because of previous prosperity to tide over an adverse season.

The thing, of course, that interests us is, in this general distribution of Congressional favors, where does iron come in? The merchant blast furnaces of America have had no real prosperity since 1907. For the past three years their business has been steadily declining. The majority of the merchant furnaces today are out of blast, utterly unable to find a market for their output. The furnaces that are in blast are lucky if they can break even. Most of them are showing heavy losses. The dividend record of the merchant furnaces of the country for the past five years is appallingly bad. Careful analysis will show millions of money, most of it apparently invested wisely in properties that are well located and well managed, yet which, because of the lack of demand and the continued low prices of iron, are yielding no return.

It is most unfortunate for these merchant furnaces that, when the iron situation is discussed in Washington, they are yoked up with the steel companies. The steel companies have had their troubles but, with their tremendous reserves, their ability to almost make a market for themselves, the majority of them have been successful in keeping on some kind of a profitable basis. They have not recently had any occasion to boast. There has been nothing glittering and phenomenal in their financial systems. They can, however, state truthfully that in the face of many difficulties they have surmounted them and have done a little better, in most cases, than hold their own.

The merchant iron furnaces of the country, however, can not take even this poor consolation for themselves. Silver, salmon, cotton, tobacco and copper have all had fair and pleasant sailing as compared with the fearful weather which the merchant iron furnaces of this country have encountered, yet no voice in Congress is raised in our behalf; no advocate comes with a special plea for iron. We are confused with the big steel companies, are regarded as wicked trusts, to be looked upon with some suspicion. Senator Burton, as far as I know, is the only man who realizes that, if all of these other special industries are to be helped, iron should be helped too, although he thinks that all of that kind of legislation is viciously wrong—in essence a species of unparalleled favoritism—but if pie is being served at the Washington lunch counter, the merchant iron furnaces of the country ought to have the largest piece. We would like to see the Government buy our iron or, following the lead of the cotton men, provided the Government can't buy the iron and can't finance us, at least encourage a national movement for every well-to-do citizen, with more than $15 in his clothes, to buy a ton of iron. There are surely a million men in America willing to buy a ton of iron and hold it for an advance. Not one man of this million would be crippled by such an investment and this would fairly put the iron trade on its feet. And if cotton, why not iron?

JAMES A. GREEN.

CINCINNATI, OHIO, September 11, 1914.

St. Louis Screw Company's New Plant

The St. Louis Screw Company, St. Louis, Mo., whose proposed important extensions were recently announced, has embraced in its plans the construction of several large buildings at once. The rolling-mill division will include one building 80 x 210 ft.; one 140 x 216 ft., and one 80 x 396 ft., together with one 34 x 106 ft. for coal pulverizing and one 30 x 40 ft. for the transformer. These will be designed for future additions. All floors will be at car-floor level to facilitate loading. After the completion of the mill buildings the work of construction will take up the bolt and nut plant, the screw plant and the general warehouse and office buildings. The plant will be operated electrically and will receive its power at 13,200 volts, transforming it to the required tensions of 2200, 440 and 220 volts. The 600-hp. mill motors will be operated at 2200 volts. The equipment of the coal pulverizing plant will have a capacity of 8 tons per hour, together with complete crane service and mono-

rail hoists. The concentration of the company's operations at the new plant will be completed upon the sale or lease of the present plant. It now manufactures screws and bolts, but will add the manufacture of bar iron and steel.

Pittsburgh Foundrymen's Association

The first meeting of the fall and winter sessions of the Pittsburgh Foundrymen's Association was held in the Fort Pitt Hotel, in that city, on the evening of September 14, and was preceded by a dinner. In the absence of J. J. Koch, the president, George B. Koch, of the Pennsylvania Railroad shops at Altoona, Pa., who is vice-president, occupied the chair. The attendance was large, about 50 foundrymen and some guests being present. Among the latter were James C. Forrest, of Henry Disston & Sons, and Nicholas P. Lloyd, of the Newton Machine Tool Works, Philadelphia.

The speaker of the evening was Col. Henry P. Bope, vice-president and general manager of sales of the Carnegie Steel Company. Colonel Bope is an officer in the National Guard of Pennsylvania, and in his remarks referred to the value of the National Guard and of the State mounted constabulary. Speaking of the chances of the United States developing foreign trade, particularly in South America, he said a number of important problems would have to be worked out, and he did not believe this country would materially increase its foreign trade for some months. He is optimistic as to the outlook, stating that the United States now contains 109,000,000 people, that their wants in steel are constantly growing, and that the consumption of steel is bound to increase very fast. He spoke of the unsatisfactory conditions existing among the railroads, and said it was an absolute fact that three-quarters of the railroads in the country are on the verge of bankruptcy. As showing the light stocks of track supplies being carried by all the railroads he mentioned that a leading Pittsburgh railroad has not in stock to-day a single rail. He believed the railroads were entitled to a fair advance in freight and passenger rates in order to put them in financial condition to buy much needed supplies. Colonel Bope's remarks made a strong impression on those present, and he was given a hearty vote of thanks when he concluded.

Three new members were added to the association, making a total membership of 133.

Steel Corporation Orders Again Increase

The United States Steel Corporation's statement of unfilled orders on its books August 31 shows them to have been 4,213,331 tons as compared with 4,158,589 tons on July 31 last. This is an increase of 54,742 tons. On August 31, 1913, the unfilled orders totalled 5,223,468 tons. The following is a statement of unfilled tonnage for each month beginning with the high point of December 31, 1912:

August 31, 1914	4,213,331	September 30, 1913	5,003,785
July 31, 1914	4,158,589	August 31, 1913	5,223,468
June 30, 1914	4,032,857	July 31, 1913	5,399,356
May 31, 1914	3,998,160	June 30, 1913	5,807,317
April 30, 1914	4,277,068	May 31, 1913	6,324,322
March 31, 1914	4,653,825	April 30, 1913	6,978,762
February 28, 1914	5,026,440	March 31, 1913	7,468,956
January 31, 1914	4,613,680	February 28, 1913	7,656,714
December 31, 1913	4,282,108	January 31, 1913	7,827,368
November 30, 1913	4,396,347	December 31, 1912	7,932,164
October 31, 1913	4,513,767		

The Sullivan Machinery Company, Peoples Gas Building, Chicago, has issued a catalogue published in Spanish for special circulation in South American markets. The lines described in this publication include Sullivan air compressors, rock and hammer drills, Sullivan diamond core drills and stone-quarrying and coal-mining machinery. The company states that it is excellently equipped to handle South American business in all these products. Its representative on the west coast of South America is M. G. Doll, care of Anthony Gibbs & Co., Santiago, Chile.

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Otis Steel Company Starts New Plant

The Otis Steel Company, Cleveland, Ohio, has just placed in operation the first unit of its new Riverside works. This plant is equipped for the manufacture of all grades of light plates and sheets, from ¼ in. thick down to and including No. 18 gauge. The equipment includes a 72-in. jobbing mill, being the widest jobbing mill thus far built. This mill, together with the 152-in. plate mill at its old works, places the company in position to produce as wide plates and sheets as can be rolled in this country if not anywhere in the world. The new Riverside works at the present time includes a complete jobbing-mill plant, several stands of cold rolls and a 72-in. plate mill with all equipment necessary to produce common red plates, blue and box annealed sheets, pickled, one and two pass cold rolled, and patent leveled finished sheets in all gauges. The company's Lakeside works, as the old plant is now known, will continue to operate as formerly, making all grades of plates from 1½ in. thick down to and including ¼-in. gauge. Not only is the Lakeside works in full operation, but the company reports several weeks' orders on the books for the new plant, which means a most auspicious beginning under present market conditions.

Isaac A. Sheppard & Co., manufacturers of cooking and heating apparatus, Philadelphia, went into receivers' hands September 9. The assets are placed at $1,000,000 and the liabilities at $500,000. The company was established 54 years ago and has always been credited with doing a profitable business. It is stated that the failure is due to inability to collect outstanding bills because of financial conditions brought about by the European war.

The C. O. Bartlett & Snow Company, Cleveland, Ohio, reports a number of inquiries from South America for mining and coal-handling machinery and expects a large field to be developed in those countries for this class of American equipment.

The Iron and Metal Markets

LESSENED PRODUCTION

Dullness in the Steel Market More Pronounced

Foreign Inquiry Not Increasing—A 50 to 60 Per Cent. Operation

The unvarying report from iron and steel centers is that the first half of September has been the quietest period of the year. Manufacturing consumers of steel products have lately made such curtailments that specifications on existing contracts with the mills have fallen off, so that production of some forms of steel is now less than in August.

The indications are now plainer that the favorable effects of the war upon the American steel trade will develop slowly and that for a longer or shorter period before they appear the industry must submit to some further readjustments.

It should not be overlooked that stocks of iron and steel in all consuming countries are being drawn upon in these weeks in which international credits have broken down and that replenishment is likely to be widespread when once the machinery of exchange can be patched into working order.

Foreign inquiry continues but it cuts a small figure in comparison with the country's steel making capacity. An English company asked for 2000 tons of wire rods and close to $28, Pittsburgh, was quoted. From Spain a 1000-ton inquiry for rods has come, and from Russia one for 5000 tons of barb wire. As the latter is contraband, the transaction has its risks. English sheet mills advise American steel works that their quotations on sheet bars are too high. The same answer is made to quotations on 20,000 tons of low phosphorus pig iron made by Eastern firms on inquiries from Great Britain. Early buying in some European quarters is evidently less imperative than had been thought.

The straits of the railroads and the stringent policy of banking interests continue to dominate the domestic situation. Some reason for hope has been found in the spreading conviction in high places that the railroads must have relief. Until it comes, rail and plate mills will have but precarious operation and producers in other lines must face shorter running time.

The mills are making some sales of plates, shapes and bars at 1.20c. for the last quarter of the year, and in a few cases orders for delivery in the first quarter of 1915 have been taken on this basis. Concessions are still reported on early delivery plates. In the main ingot production is at 50 to 60 per cent. of capacity.

The larger structural shops are all filled up for three to seven months, but many building projects have come to a standstill and current contracts are few. In August, the Bridge Builders' and Structural Society estimates new orders represented 27.5 per cent. of a month's capacity of the bridge and structural shops of the country. Bids have gone in at Pittsburgh for the B. & O. bridge over the Allegheny at Thirty-third street, 10,000 to 12,000 tons, and the McClintic-Marshall Construction Company has the contract for the new Pennsylvania bridge at Kiskiminetas Junction, 3500 tons.

Tin plate mills are operating at nearly 85 per cent. of capacity, due to the partial resumption of oil exports and the exceptional demand from the canning trade. As pig tin has declined, tin plate prices are easier.

The Standard Oil Company has notified producers of crude oil that it will take two-thirds of their output instead of one-third and this may be a stimulus to drilling. Meanwhile the tube industry has been running on not more than a 50 per cent. basis and some companies only 30 to 40 per cent.

In the pig iron market, dull and even more depressed in all sections, the East has led in activity, and there Philadelphia has done most of the business. There are reports that Buffalo iron has sold lower in New England and that local iron in the Chicago district has developed further weakness. Inquiry has come up for pig iron that will be needed for 22,000 tons of additional Brooklyn tunnel segments.

Canadian mills that were recently closed have not reopened. A government order for 10,000 tons of rails for the Intercolonial Railway is being held as a nucleus, pending the development of other business. Another recent award is 12,000 tons of steel for Halifax terminals and docks.

English makers of ferromanganese have reduced their price to $80 Baltimore for delivery this year, on the report of sales by the Steel Corporation at $85. The Steel Corporation now announces that its price is $100.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type. Declines in Italics

At date, one week, one month, and one year previous.

	Sept. 16, 1914.	Sept. 9, 1914.	Aug. 12, 1914.	Sept. 17, 1913.
Pig Iron, Per Gross Ton:				
No. 2 X, Philadelphia...	$14.75	$14.75	$14.75	$15.85
No. 2, Valley furnace...	13.00	13.00	13.00	14.00
No. 2 Southern, Cin'ti....	13.25	13.25	13.25	14.25
No. 2, Birmingham, Ala.	10.00	10.00	10.00	11.00
No. 2, furnace, Chicago*	*13.25*	13.50	13.75	15.00
Basic, del'd, eastern Pa.	14.00	14.00	14.00	15.25
Basic, Valley furnace....	13.00	13.00	13.00	14.00
Bessemer, Pittsburgh....	14.90	14.90	14.90	16.65
Malleable Bess., Ch'go*..	13.25	13.25	14.00	15.00
Gray forge, Pittsburgh...	13.65	13.65	13.65	14.25
L. S. charcoal, Chicago..	15.75	15.75	15.75	14.75
Billets, etc., Per Gross Ton:				
Bess, billets, Pittsburgh..	21.00	21.00	20.00	25.00
O.-h. billets, Pittsburgh..	21.00	21.00	20.00	24.00
O.-h. sheet bars, P'gh...	22.00	22.00	21.00	25.00
Forging billets, base, P'gh.	26.00	26.00	25.00	30.00
O.-h. billets, Phila.....	23.40	23.40	22.40	25.00
Wire rods, Pittsburgh...	*26.00*	26.50	24.50	27.00

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

Old Material, Per Gross Ton:	Sept. 16, 1914.	Sept. 9, 1914.	Aug. 12, 1914.	Sept. 17, 1913.
Iron rails, Chicago	12.00	12.00	12.00	14.00
Iron rails, Philadelphia	14.00	14.00	14.00	17.50
Carwheels, Chicago	*11.00*	11.25	11.25	12.75
Carwheels, Philadelphia	*11.00*	11.50	11.00	13.00
Heavy steel scrap, P'gh	11.25	11.25	11.50	12.25
Heavy steel scrap, Phila.	*10.75*	11.00	10.00	11.75
Heavy steel scrap, Ch'go	*9.00*	9.50	9.75	10.25
No. 1 cast, Pittsburgh	11.50	11.50	11.50	12.75
No. 1 cast, Philadelphia	12.00	12.00	12.00	12.75
No. 1 cast, Ch'go (net ton)	*9.00*	9.25	9.50	10.50
Finished Iron and Steel, Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Bess. rails, heavy, at mill	1.25	1.25	1.25	1.25
Iron bars, Philadelphia	*1.12*	1.15	1.17½	1.35
Iron bars, Pittsburgh	1.20	1.20	1.15	1.55
Iron bars, Chicago	1.07½	1.07½	1.07½	1.35
Steel bars, Pittsburgh	1.20	1.20	1.20	1.40
Steel bars, New York	1.36	1.36	1.36	1.56
Tank plates, Pittsburgh	1.20	1.20	1.20	1.40
Tank plates, New York	1.36	1.36	1.36	1.56
Beams, etc., Pittsburgh	1.20	1.20	1.20	1.40
Beams, etc., New York	1.36	1.36	1.36	1.56
Skelp, grooved steel, P'gh	1.20	1.20	1.15	1.35
Skelp, sheared steel, P'gh	1.25	1.25	1.20	1.45
Steel hoops, Pittsburgh	1.30	1.30	1.25	1.60
Sheets, Nails and Wire, Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, P'gh	1.95	1.95	1.85	2.15
Galv. sheets, No. 28, P'gh	2.95	2.95	2.85	3.15
Wire nails, Pittsburgh	1.60	1.60	1.55	1.65
Cut nails, Pittsburgh	1.60	1.60	1.55	1.60
Fence wire, base, P'gh	1.40	1.40	1.35	1.45
Barb wire, galv., P'gh	2.00	2.00	1.95	2.05
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$1.65	$1.65	$1.70	$2.25
Furnace coke, future	1.75	1.75	1.75	2.25
Foundry coke, prompt	2.10	2.10	2.25	2.90
Foundry coke, future	2.25	2.25	2.35	3.00
Metals, Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York	*12.75*	13.00	12.87½	16.87½
Electrolytic copper, N. Y.	*12.12½*	12.25	12.50	16.75
Spelter, St. Louis	*5.30*	5.65	5.35	5.65
Spelter, New York	*5.45*	5.80	5.50	5.80
Lead, St. Louis	*3.70*	3.72½	3.67½	4.62½
Lead, New York	3.87½	3.87½	3.85	4.75
Tin, New York	*31.35*	33.75	64.25	42.60
Antimony, Hallett's, N. Y.	*11.00*	12.50	20.00	7.75
Tin plate, 100-lb. box, P'gh	$3.40	$3.40	$3.40	$3.50

Finished Iron and Steel f. o. b. Pittsburgh

Freight rates from Pittsburgh, in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Louis, 22½c.; Kansas City, 42½c.; Omaha, 42½c.; St. Paul, 32c.; Denver, 84½c.; New Orleans, 30c.; Birmingham, Ala., 45c.; Pacific coast, 80c. on plates, structural shapes and sheets No. 11 and heavier 85c. on sheets Nos. 12 to 16; 95c. on sheets No. 16 and lighter; 65c. on wrought pipe and boiler tubes. The foregoing rates to the Pacific coast are by rail. The rate via New York and the Panama Canal on plates, shapes, etc., is 46c.

Plates.—Tank plates, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.20c., base, net cash, 30 days.

Structural Material.—I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in. on one or both legs, ¼ in. thick and over and zees, 3 in. and over, 1.20c. to 1.25c. Extras on other shapes and sizes are as follows:

	Cents per lb.
I-beams over 15 in.	.10
H-beams over 18 in.	.10
Angles over 6 in., on one or both legs	.10
Angles, 3 in. on one or both legs, less than ¼ in. thick, as per steel bar card, Sept. 1, 1909	.70
Tees, structural sizes (except elevator, handrail, car truck and conductor rail)	.05
Channels and tees, under 3 in. wide, as per steel bar card, Sept. 1, 1909	.20 to .80
Deck beams and bulb angles	.30
Hand rail tees	.75
Cutting to lengths, under 3 ft. to 2 ft. inclusive	.25
Cutting to lengths, under 2 ft. to 1 ft. inclusive	.50
Cutting to lengths, under 1 ft.	1.55

No charge for cutting to lengths 3 ft. and over.

Wire Products.—Fence wire, Nos. 0 to 9, per 100 lb., terms 60 days or 2 per cent. discount in 10 days, carload lots to jobbers, annealed, $1.40; galvanized, $1.80. Galvanized barb wire and fence staples to jobbers, $2; painted, $1.60. Wire nails to jobbers, $1.60. Woven wire fencing, 73 per cent. off list for carloads; 72 off for 1000-rod lots; 71 off for less than 1000-rod lots.

The following table gives the price to retail merchants on fence wire in less than carloads, with the extras added to the base price:

Plain Wire, per 100 lb.

Nos.	0 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.55	$1.60	$1.65	$1.70	$1.80	$1.90	$2.00	$2.10
Galvanized	2.00	2.00	2.05	2.10	2.20	2.30	2.70	2.80

Wire Rods.—Bessemer, open-hearth and chain rods, $26 to $26.50.

Wrought Pipe.—The following are the jobbers' carload discounts on the Pittsburgh basing card on steel pipe in effect from April 20, 1914, and iron pipe from June 2, 1913, all full weight:

Butt Weld

Steel			Iron		
Inches	Black	Galv	Inches	Black	Galv.
⅛, ¼ and ⅜	73	52½	⅛ and ¼	66	47
½	77	66½	⅜	65	46
¾ to 3	80	71½	½	69	56
			¾ to 2½	72	61

Lap Weld

2	77	68½	1¼	56	45
2½ to 6	79	70½	1½	67	56
7 to 12	76	65½	2	68	58
13 to 15	53	..	2½ to 4	70	61
			4½ to 6	70	61
			7 to 12	68	55

Reamed and Drifted

1 to 3, butt	78	69½	1 to 1½, butt	70	59
2, lap	75	66½	2, butt	70	59
2½ to 6, lap	77	68½	1¼, lap	54	43
			1½, lap	65	54
			2, lap	66	56
			2½ to 4, lap	68	59

Butt Weld, extra strong, plain ends

⅛, ¼ and ⅜	68	57½	⅜	63	52
½	73	66½	½	67	60
¾ to 1½	77	70½	¾ to 1½	71	62
2 to 3	78	71½	2 and 2½	72	63

Lap Weld, extra strong, plain ends

2	74	65½	1½	65	59
2½ to 4	76	67½	2	66	58
4½ to 6	75	66½	2½ to 4	70	61
7 to 8	68	57½	4½ to 6	69	60
9 to 12	63	52½	7 to 8	63	53
			9 to 12	58	47

Butt Weld, double extra strong, plain ends

½	63	56½	½	57	49
¾ to 1½	66	59½	¾ to 1½	60	52
2 to 2½	68	61½	2 and 2½	62	54

Lap Weld, double extra strong, plain ends

2	64	57½	2	55	49
2½ to 4	66	59½	2½ to 4	60	54
4½ to 6	65	58½	4½ to 6	59	53
7 to 8	58	47½	7 to 8	52	42

To the large jobbing trade an additional 5 and 2½ per cent. is allowed over the above discounts.

The above discounts are subject to the usual variation in weight of 5 per cent. Prices for less than carloads are two (2) points lower basing (higher price) than the above discounts on black and three (3) points on galvanized.

Boiler Tubes.—Discounts to jobbers, in carloads, in effect from May 1, 1914, on steel and from January 2, 1914, on iron, are as follows:

Lap Welded Steel		*Standard Charcoal Iron*	
1¾ and 2 in.	62	1½ in.	45
2¼ in.	59	1¾ and 2 in.	49
2½ and 2¾ in.	65	2¼ in.	45
3 and 3¼ in.	70	2½ to 2¾ in.	54
3½ to 4½ in.	72	3 and 3¼ in.	57
5 and 6 in.	65	3½ to 4½ in.	60
7 to 13 in.	62	5 and 6 in.	49

Locomotive and steamship special charcoal grades bring higher prices.

2½ in. and smaller, over 18 ft., 10 per cent. net extra.

2¾ in. and larger, over 22 ft., 10 per cent. net extra.

Less than carloads will be sold at the delivered discounts for carloads, lowered by two points for lengths 22 ft. and under to destinations east of the Mississippi River; lengths over 22 ft., and all shipments going west of the Mississippi River must be sold f.o.b. mill at Pittsburgh basing discount, lowered by two points. On standard charcoal iron tubes for desirable orders the above discounts are shaded an extra 5, and occasionally two 5's by some makers.

Sheets.—Makers' prices for mill shipment on sheets of U. S. Standard gauge, in carload and larger lots, on which jobbers charge the usual advance for small lots from store, are as follows, f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount in 10 days from date of invoice:

Blue Annealed Sheets

	Cents per lb.
Nos. 3 to 8	1.40 to 1.45
Nos. 9 to 10	1.45 to 1.50
Nos. 11 and 12	1.50 to 1.55
Nos. 13 and 14	1.60 to 1.65
Nos. 15 and 16	1.70 to 1.75

Box Annealed Sheets, Cold Rolled

	Cents per lb.
Nos. 10 and 11	1.60 to 1.65
No. 12	1.65 to 1.75
Nos. 13 and 14	1.65 to 1.70
Nos. 15 and 16	1.70 to 1.75
Nos. 17 to 21	1.75 to 1.80
Nos. 22 and 24	1.80 to 1.85
Nos. 25 and 26	1.85 to 1.90
No. 27	1.90 to 1.95
No. 28	1.95 to 2.00
No. 29	2.00 to 2.05
No. 30	2.10 to 2.15

Galvanized Sheets of Black Sheet Gauge

	Cents per lb.
Nos. 10 and 11	1.95 to 2.00
No. 12	2.05 to 2.10
Nos. 13 and 14	2.05 to 2.10
Nos. 15 and 16	2.20 to 2.25
Nos. 17 to 21	2.35 to 2.40
Nos. 22 and 24	2.50 to 2.55
Nos. 25 and 26	2.65 to 2.70
No. 27	2.80 to 2.85
No. 28	2.95 to 3.00
No. 29	3.10 to 3.15
No. 30	3.25 to 3.30

Pittsburgh

PITTSBURGH, PA., September 15, 1914.

The extreme dullness existing in the steel trade is more pronounced this week and there is nothing in sight that is likely to bring improvement for the next two or three months at least. The railroads, as buyers of steel, are practically out of it, and other consumers are placing orders only for such quantities as they must have, not taking a pound more than necessary. As showing how railroads are carrying the lightest stocks possible, Col. H. P. Bope, of the Carnegie Steel Company, in an address last night before the Pittsburgh Foundrymen's Association, made the surprising statement that a leading Pittsburgh railroad has not a single extra rail in stock, and that three-fourths of the railroads are on the verge of bankruptcy. In plates, shapes and bars, mills will take orders for last quarter delivery at 1.20c., and this price has been done in a few cases for first quarter of 1915 delivery on specific work. The feeling among steel makers now is that if the market on plates, shapes and bars can be held at 1.20c. under present conditions through the winter months it is all that can be expected. Foreign inquiries, notably from England and South America, are fairly active, but as yet only a relatively small amount of business has been closed. The general rate of operations among the steel mills is not over 50 to 60 per cent. Prices are holding fairly steady, but not enough new business is coming out to test them. While the outlook for the remainder of this year is discouraging, it is believed that soon after the European war is ended our mills will have a heavy foreign trade, which will favorably influence domestic business.

Pig Iron.—A tentative inquiry is in the market from the Wheeling Mold & Foundry Company for 30,000 to 35,000 tons of foundry iron, but the purchase is contingent on getting a large contract for segments for a New York tunnel. The local market is lifeless. An occasional carload of No. 2 foundry is sold at $13 to $13.25 at Valley furnace. Prices are purely nominal, in the absence of sales, as follows: Bessemer, $14; basic, $13; malleable Bessemer, $13; No. 2 foundry, $13 to $13.50; gray forge, $12.75, all at Valley furnace, with a freight rate of 90c. a ton for Cleveland or Pittsburgh delivery.

Billets and Sheet Bars.—Local and Youngstown steel mills are adhering firmly to $21 for Bessemer and open-hearth billets and $22 for sheet bars, f.o.b. maker's mill, but it is strongly intimated that some of the smaller open-hearth steel mills would sell sheet bars, if there was any demand, at $21 at mill or less. Specifications against contracts from sheet and tin-plate mills are fairly active, but there is no new inquiry, as consumers are covered. For shipment over remainder of this year we quote: Bessemer and open-hearth billets, $21; Bessemer and open-hearth sheet bars, $22, Pittsburgh or Youngstown mill, freight added to point of delivery. We quote forging billets at $26 for sizes up to, but not including, 10 x 10-in., and for carbons up to 0.25, the regular extras being charged for larger sizes and higher carbons. Forging billets running above 0.25 to 0.60 carbon take $1 per ton extra. We quote axle billets at $24 to $25, f.o.b. Pittsburgh, depending on the order.

Ferroalloys.—The exact position of the Carnegie Steel Company in the ferromanganese market has been the subject of a good deal of discussion recently. It can now be stated that this company is not seeking orders for ferromanganese, but will sell limited quantities for spot shipment to steel works that must have it or shut down, but will not sell ahead for forward delivery. In other words, the company would not see a competitor close down its steel works for lack of ferromanganese, but would sell a limited quantity to tide over the emergency, and its price on such business is $100 per ton, f.o.b. Pittsburgh. As yet the local office of the Carnegie Steel Company, which handles all sales of ferromanganese, has not made a single sale. It is understood that prices on English ferromanganese have been reduced to $80, seaboard, for October and November delivery. There is not much new inquiry, as consumers seem to be covered over the next two or three months. Prices on ferrosilocon are unchanged, but very firm. We quote 50 per cent. ferrosilicon, in lots up to 100 tons, at $73; over 100 tons to 600 tons, $72; over 600 tons, $71, delivered in the Pittsburgh district. On 10 per cent. ferrosilicon the quotation is $19; 11 per cent., $20, and 12 per cent., $21, f.o.b. cars Jackson County, Ohio, or Ashland, Ky., furnace. We quote 20 per cent. spiegeleisen at $25 at furnace. We quote ferrotitanium at 8c. per lb. in carloads; 10c. in 2000-lb. lots and over, and 12½c. in less than 2000-lb. lots.

Steel Rails.—The railroads are doing nothing in rail purchases, except in small lots ranging from 100 up to 500 tons for prompt delivery for repair work. The Carnegie Steel Company has taken an order from a West Virginia traction line for 500 tons of standard sections. The new demand and specifications against contracts for light rails are fairly active, the company named having booked over 2000 tons in the past week. We quote standard sections of Bessemer steel rails at 1.25c. and open-hearth, 1.34c. We quote light rails, rolled from billets, as follows: 25, 30, 35, 40 and 45-lb. sections at 1.15c.; 16 and 20 lb., 1.20c.; 12 and 14 lb., 1.25c., and 8 and 10 lb., 1.30c., in carload lots, f.o.b. Pittsburgh. Rerolled light rails are being quoted at $1 and $2 a ton less than the above prices.

Muck Bar.—There have been no recent sales, and this week the puddling plant of the A. M. Byers Company at Girard, Ohio, the largest in the Central West, containing 88 furnaces, is closed down. We quote the market on best grades of muck bar, made from all pig iron, at nominally $28, Pittsburgh.

Cotton Ties.—The trade for this season is over. In volume it was considerably lighter than last year.

Structural Material.—New inquiry continues light. It is stated that, on the small amount of new business now being placed, such low prices are being made by fabricators that they leave little or no profit. Most fabricators are still evidently figuring on jobs at 1.10c. or less for plain material. The McClintic-Marshall Company has taken 3500 tons for a new bridge for the Pennsylvania Railroad at Kiskiminetas Junction, Pa., and about 840 tons for small bridges for the same road. The Fort Pitt Bridge Works is low bidder on about 1500 tons for a bridge over the Hudson River at Troy, N. Y., and has taken 150 tons of bridge work for the New York Central. Bids go in to-day (Tuesday) on a new bridge for the Baltimore & Ohio Railroad, crossing the Allegheny River at Thirty-third street, in this city, to carry the Junction railroad tracks and to replace a present structure. This is a heavy bridge and will take from 10,000 to 12,000 tons. We quote beams and channels up to 15 in. at 1.20c. for delivery over remainder of the year, and on specific work this price has been made for delivery in first quarter of 1915.

Plates.—The market is very dull. The Cristobal coal handling plant at the Panama Canal is in the market, requiring about 4500 tons of plates, shapes and bars. No new steel car orders are being placed. Reports that the Pressed Steel Car Company had taken 75 50-ton all-steel hopper cars for the Rutland Railroad of Vermont are officially denied. The Woods Run plant

of the Pressed Steel Car Company is shut down, the McKees Rocks Works will likely close in a couple of weeks, and its Western plant near Chicago will also close in three or four weeks unless new orders are received. None of the plate mills is running to more than 50 per cent. of capacity, and some at a less rate. We quote ¼-in. and heavier plates at 1.20c., f.o.b. Pittsburgh, for remainder of the year delivery, but the market is none too strong at this price.

Steel Wheels.—Practically no new orders are being placed for forged steel or cast-iron car wheels, as the car shops are not getting any new orders for cars. We quote wrought-steel car wheels as follows: 33-in. engine truck wheels, $22.50; 36-in. engine truck wheels, $23.50; 33-in. tender wheels, $18.50; 36-in. passenger car and tender wheels, $21.50; 33-in. freight carwheels, $15.50, all with standard 2½-in. rims and minimum standard hubs, usual extras applying for thicker rims and larger hubs, all f.o.b. cars, Pittsburgh.

Skelp.—As the pipe mills are not running to over 50 per cent. of capacity the new demand for skelp is very dull. Several large orders for grooved steel skelp are in the market for foreign delivery, mostly from England, and some lots have been closed. Prices are only fairly strong, and we quote: Grooved steel skelp, 1.20c.; sheared steel skelp, 1.25c.; grooved iron skelp, 1.55c.; sheared iron skelp, 1.65c., delivered to consumers' mills in the Pittsburgh district.

Iron and Steel Bars.—Mills report that specifications against contracts for steel bars are coming in quite well, but are not as heavy as last month. Steel bars for reinforcing work are fairly active. The general demand for iron and steel bars is light. We quote steel bars at 1.20c. for remainder of the year delivery, and common iron bars 1.20c., both at maker's mill.

Wire Rods.—An inquiry is in the market from England for 2000 tons of open-hearth wire rods, and one local maker has quoted close to $28, Pittsburgh. There are also three or four good inquiries from Canada. Indications are that exports of wire rods from this country will be heavy as soon as bottoms can be secured and credits arranged. We quote Bessemer, open-hearth and chain rods at $26, f.o.b. Pittsburgh, for domestic delivery.

Sheets.—There is a moderate new demand, but mostly for small lots, and mills report that specifications against contracts are coming in at a fair rate. Prices on spelter have receded. The market on black and galvanized sheets is fairly strong, and most mills are quoting 2c. on No. 28 black and 3c., on No. 28 galvanized for delivery over remainder of the year. For prompt shipment, where specifications accompany the order, a few mills are naming 1.95c. on No. 28 black and 2.95c. on No. 28 galvanized. We quote Nos. 9 and 10 blue annealed sheets at 1.40c. to 1.45c.; No. 28 Bessemer black, 1.95c. to 2c.; No. 28 galvanized, 2.95c. to 3c., f.o.b. Pittsburgh, the lower prices being for prompt delivery and the higher prices for shipment over the next two or three months. We quote No. 28 black plate, tin mill sizes, H. R. and A., at 1.95c. to 2c.; Nos. 29 and 30, 2c. to 2.05c. The above prices are for carload and larger lots, f.o.b. Pittsburgh, jobbers charging the usual advances for small lots from store.

Tin Plate.—Pig tin has declined to about the prices in effect before the war broke out, and as a result the price of tin plate for shipment from stock, which had been as high as $3.75 per base box, has gone off. There is not much new buying, but mills report heavy specifications from large consumers. Some foreign inquiry is in the market, but as yet little or no business has been closed. Some tin-plate mills have received inquiries from customers for delivery through 1915, but have replied that, owing to the uncertainty as to prices of pig tin, and whether a supply can be had, they do not care to take next year inquiries up until later. We now quote 100 lb. 14 x 20 coke and terne plates at $3.40 to $3.50, f.o.b. maker's mill.

Wire Products.—Local wire mills have an inquiry for 5000 tons of barb wire for shipment to Russia, but as this material is contraband it is doubtful whether anything can be done with it. One wire maker states that it will figure on the order for delivery in New York, but must have the money before the wire leaves New York docks. There is also some foreign inquiry for plain and barb wire from England, South America and India. As yet foreign inquiry for wire nails is light, and it is believed most of this is going to Canadian mills. The new demand for wire nails is light, but specifications against contracts are fairly active. On new orders we quote wire nails at $1.60; plain annealed wire, $1.40; galvanized barb wire and fence staples, $2; painted barb wire, $1.60, all f.o.b. Pittsburgh, freight added to point of delivery, terms 30 days net, less 2 per cent. off for cash in 10 days. We quote steel cut nails at $1.60 to $1.65, f.o.b. Pittsburgh, in carload lots. We quote woven wire fencing at 73 per cent. off in carload lots, 72 off on 1000-rod lots, and 71 per cent. on smaller lots, all f.o.b. Pittsburgh.

Nuts, Bolts and Rivets.—Boiler rivets are dull, as the boiler makers have good stocks, while for structural rivets the demand is fair, but mostly in small lots. Consumers of nuts and bolts covered their requirements in July for remainder of the year, but specifications against contracts are not heavy. Prices are not so firm as they were early in August, being sometimes shaded. Discounts on nuts and bolts are as follows in lots of 300 lb. or over, delivered within a 20c. freight radius of maker's works:

Coach and lag screws	80 and 5% off
Small carriage bolts, cut threads	80% off
Small carriage bolts, rolled threads	80 and 5% off
Large carriage bolts	75 and 5% off
Small machine bolts, cut threads	80 and 5% off
Small machine bolts, rolled threads	80 and 10% off
Large machine bolts	75 and 10% off
Machine bolts, c.p.c. & t nuts, small	80% off
Machine bolts, c.p.c. & t nuts, large	75 and 5% off
Square h.p. nuts, blank and tapped	$6.30 off list
Hexagon nuts	$7.20 off list
C.P.C. and r sq. nuts, blank and tapped	$6.00 off list
Hexagon nuts, ⅝ in. and larger	$7.20 off list
Hexagon nuts, smaller than ½ in.	$7.80 off list
C.P. plain square nuts	$5.50 off list
C.P. plain hexagon nuts	$5.90 off list
Semi-fin. hex. nuts, ½ in. or under	85, 10 & 10% off
Semi-fin. hex. nuts, ⅝ in. and larger	85 & 5% off
Rivets, 7/16 x 6½, smaller & shorter	80, 10 & 5% off
Rivets, tin plated, packages	80, 10 and 5% off
Rivets, metallic tinned, packages	80, 10 and 5% off
Standard cap screws	70, 10 and 10% off
Standard set-screws	75, 10 and 10% off

Shafting.—The implement makers and the automobile builders are not specifying as freely against their contracts for shafting as they were several weeks ago, while it is estimated that the new demand is not more than 25 to 30 per cent. of capacity. We quote cold-rolled shafting at 66 per cent. off in carload lots, delivered in base territory.

Hoops and Bands.—The new demand is quiet and only for small lots, and specifications against contracts are dull. We quote steel bands at 1.20c. and steel hoops at 1.30c., f.o.b. Pittsburgh, for delivery over remainder of this year.

Spikes.—Practically no new demand for spikes is coming in from the railroads, and small spikes are also very dull. We quote standard sizes of railroad and boat spikes at $1.40, and small railroad and boat spikes at $1.50 per 100 lb. in carload lots, f.o.b. Pittsburgh.

Merchant Steel.—The new demand is quiet and only for small lots to cover current needs. Specifications against contracts are not as active as they were early in August. Prices are only fairly strong, and on small lots are about as follows: Iron finished tire, ½ x 1½ in. and larger, 1.30c., base; under ½ x 1½ in., 1.45c.; planished tire, 1.50c.; channel tire, ¾ to ⅞ and 1 in., 1.80c. to 1.90c.; 1⅛ in. and larger, 1.90c.; toe calk, 1.90c. to 2c., base; flat sleigh shoe, 1.65c.; concave and convex, 1.70c.; cutter shoe, tapered or bent, 2.20c. to 2.30c.; spring steel, 1.90c. to 2c.; machinery steel, smooth finish, 1.70c. We quote cold-rolled strip steel as follows: Base rates for 1 in. and 1½ in. and wider, under 0.20 carbon, and No. 10 and heavier, hard temper, 3.25c.; soft, 3.50c.; coils, hard, 3.15c.; soft, 3.40c.; freight allowed. The usual differentials apply for lighter sizes.

Standard Pipe.—The Standard Oil Company has sent out notices to Pennsylvania producers of crude oil that it will take two-thirds of their output instead of one-third, as formerly, and this may stimulate new drilling to slight extent. However, the very low prices ruling for crude oil do not give much encouragement

to the oil trade, and new drilling has almost stopped. There is practically no new demand for casing or oil well supplies, but for merchant pipe there is a fair inquiry. On account of the very dull condition of the pipe trade, none of the mills is running to more than 50 per cent., and some to only 30 to 40 per cent. of capacity. Discounts are unchanged.

Boiler Tubes.—There is practically no new demand for locomotive tubes, as little work is being done in locomotive shops. For merchant tubes there is a fair demand in small lots to meet current needs. Discounts are still materially shaded.

Coke.—The local coke market is stagnant, there being no demand for furnace coke on contracts and little for spot coke. Prices are weak, and it is said that standard grades of furnace coke have sold for spot shipment as low as $1.60 per net ton at oven. The demand for foundry coke is dull, as most foundries are doing very little and some of them are holding up shipments to some extent. We quote best grades of blast-furnace coke for spot shipment at $1.65 to $1.70, and on contracts for remainder of the year $1.75 to $1.85 per net ton at oven. We quote standard makes of 72-hr. foundry coke at $2.10 to $2.25. The output of coke in the upper and lower Connellsville regions for the week ended September 5, as stated by the Connellsville Courier, was 267,870 net tons, an increase over the previous week of 8157 tons. This increase came largely from the blowing in of ovens by the H. C. Frick Coke Company, which needs more coke for the Carnegie Steel Company's blast furnaces.

Old Material.—A local consumer that has been taking in fair quantities of selected heavy steel scrap at $11.50, delivered, now states it has accumulated fairly large stocks and is out of the market at present. Dealers are offering selected heavy steel scrap as low as $11.25, delivered, without finding buyers. One or two consumers are taking in fair quantities of borings, and we note a sale of 500 tons at $8.25, delivered. Prices on scrap are weak, but dealers are afraid to sell short, as they feel the market may take a turn for the better at any time. For delivery to consumers' mills in the Pittsburgh and nearby districts, that take the same rates of freight, prices are about as follows:

Selected heavy steel melting scrap, Steubenville, Follansbee, Brackenridge, Sharon, Monessen, Midland and Pittsburgh delivery	$11.25 to $11.50
Compressed side and end sheet scrap	10.00 to 10.25
No. 1 foundry cast	11.50 to 11.75
No. 2 foundry cast	10.25 to 10.50
Bundled sheet scrap, f.o.b. consumers' mills, Pittsburgh district	8.25 to 8.50
Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa.	12.75 to 13.00
No. 1 railroad malleable stock	11.00 to 11.25
Railroad grate bars	10.25 to 10.50
Low phosphorus melting stock	14.25 to 14.50
Iron car axles	19.00 to 19.50
Steel car axles	13.50 to 14.00
Locomotive axles, steel	20.00 to 20.50
No. 1 busheling scrap	10.25 to 10.50
No. 2 busheling scrap	7.25 to 7.50
Machine shop turnings	7.75 to 8.00
Old carwheels	11.25 to 11.50
Cast-iron borings	8.25 to 8.50
†Sheet bar crop ends	12.00 to 12.25
Old iron rails	13.00 to 13.25
No. 1 railroad wrought scrap	11.50 to 11.75
Heavy steel axle turnings	8.50 to 8.75
Heavy breakable cast scrap	11.25 to 11.50

†Shipping point.

Chicago

CHICAGO, ILL., September 16, 1914.—(*By Wire.*)

A thoroughly discouraging report can be avoided by brevity only. Sales have steadily diminished in volume thus far this month, and specifications are falling behind the record of August. Business expansion is being suppressed and extreme conservatism prevails. An order for 2000 tons of rails for an Indiana road is noted and the sheet mills continue to report good tonnage in their business, but beyond this orders for material are too scattering for comment. Structural contracts reported placed in the West last week barely exceeded 500 tons. The city of Chicago is in the market for 350 tons of reinforcing steel. Prices are being generally maintained but no confidence is expressed in their stability should any real business offer. The pig-iron market shows very few sales and these at prices conspicuously weak. Scrap is a drug on the market.

Pig Iron.—Sales of Northern foundry iron are reported at prices as low as $12.75 at the furnace and a sale of off basic iron is noted on the basis of $12.50 at the furnace. These quotations are somewhat below the prices for standard grades of iron, but $13.25 at the furnace can be done for No. 2 foundry and malleable. Inquiry, however, is exceedingly light, particularly for Southern iron, the price of which is again comparatively high as compared with local quotations. The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable Bessemer and basic iron, which are f.o.b. furnace and do not include a local switching charge averaging 50c. a ton:

Lake Superior charcoal	$15.75 to $16.75
Northern coke foundry, No. 1	14.00 to 14.50
Northern coke foundry, No. 2	13.25 to 13.75
Northern coke foundry, No. 3	13.00 to 13.25
Southern coke, No. 1 f'dry and 1 soft	14.85 to 15.10
Southern coke, No. 2 f'dry and 2 soft	14.35 to 14.60
Malleable Bessemer	13.25 to 13.75
Standard Bessemer	17.00
Basic	13.25 to 13.50
Low phosphorus	21.00 to 21.75
Jackson Co. and Ky. silvery, 6 per cent.	16.90 to 17.40
Jackson Co. and Ky. silvery, 8 per cent.	17.90 to 18.40
Jackson Co. and Ky. sil'vy, 10 per cent.	18.90 to 19.40

(*By Mail*)

Rails and Track Supplies.—With the exception of an order for 2000 tons of rails placed here by the Chesapeake & Ohio Railroad for one of its Western branches, there has been practically no buying of track material by the railroads. As in the above instance, however, all purchases that have been made call most insistently for immediate shipment. This is consistent with the general fact that only such materials are being bought as extremity demands. We quote standard railroad spikes at 1.50c. to 1.60c., base; track bolts with square nuts, 1.90c. to 2c., base, all in carload lots, Chicago; tie plates, $25.50 to $26, f.o.b. mill, net ton; standard section Bessemer rails, Chicago, 1.25c., base; open hearth, 1.34c.; light rails, 25 to 45 lb., 1.25c.; 16 to 20 lb., 1.30c.; 12 lb., 1.35c.; 8 lb., 1.40c.; angle bars, 1.50c., Chicago.

Structural Material.—Building projects are at a standstill. A number of steel structures projected for the downtown district of this city have been held up because of inability to properly finance them. Local fabricating shops have only a limited portion of their capacity occupied. The only contract of local importance placed during the week was 419 tons for the head house of pier No. 2 for the city of Chicago, the steel to be furnished by North Works, Illinois Steel Company. A second head house of similar size is to be placed in the near future. The American Bridge Company was awarded 104 tons for three bridge spans in Columbia County, Ore. The price for plain material from mill remains unchanged at 1.38c., Chicago.

We quote for plain structural material out of store, Chicago delivery, 1.75c.

Plates.—The only new business the mills are taking is an occasional order for tank steel and specifications show little greater variety. The building of oil tanks in the Southwestern fields has been taking a fair tonnage and there is some inquiry for tanks to go to Mexico. For car steel there seems to be not a single inquiry. We continue to quote for Chicago delivery, from mill, 1.38c.

We quote for plates for Chicago delivery, from store, 1.75c.

Sheets.—Although new business in sheets has sharply dropped off, the market continues well established on the strength of previous bookings, against which specifications are holding up much better than in the heavier lines. We quote for Chicago delivery from mill: No. 10 blue annealed, 1.63c.; No. 28 black, 2.18c.; No. 28 galvanized, 3.18c.

We quote for Chicago delivery from jobbers' stock as follows, minimum prices applying on bundles of 25 or more: No. 10 blue annealed, 1.95c.; No. 28 black, 2.55c.; No. 28 galvanized, 3.55c.

Bars.—The demand for soft steel bars has dwindled to rather meager proportions, and even reinforcing

bars, sales of which have been maintained throughout the summer in substantial volume, are decidedly subnormal. In iron bars there is no activity worthy of comment. We quote for mill shipments as follows: Bar iron, 1.07½c. to 1.10c.; soft steel bars, 1.38c.; hard steel bars, 1.25c. to 1.30c.; shafting in carloads, 65 per cent. off; less than carloads, 60 per cent. off.

We quote store prices for Chicago delivery: Soft steel bars, 1.65c.; bar iron, 1.65c.; reinforcing bars, 1.65c. base, with 5c. extra for twisting in sizes ½ in. and over and usual card extras for smaller sizes; shafting 60 per cent. off.

Rivets and Bolts.—Specifications against bolt contracts have suffered less than was to be expected and some orders from railroads are noted. The price situation shows no change and we continue to quote from mill as follows: Carriage bolts up to ⅜ x 6 in., rolled thread, 85; cut thread, 80-5; larger sizes, 80; machine bolts up to ⅜ x 4-in., rolled thread, 85-5; cut thread, 85; larger sizes, 80-5; coach screws, 85-10; hot pressed nuts, square head, $6.60 off per cwt.; hexagon, $7.60 off per cwt. Structural rivets, ½ to ¼ in., 1.58c., base, Chicago, in carload lots; boiler rivets, 10c. additional.

We quote out of store: Structural rivets, 2.20c.; boiler rivets, 2.30c.; machine bolts up to ¾ x 4 in., 75-15; larger sizes, 70-10-10; carriage bolts up to ⅝ x 6 in., 75-10; larger sizes, 70-15 off; hot pressed nuts, square head, $6, and hexagon, $6.70 off per cwt.

Wire Products.—Buying of wire products continues in reasonably good volume, though consumers are not anticipating their needs very far in advance. The chief feature of interest is the proportion of orders calling for rush shipment. We quote to jobbers as follows: Plain wire, No. 9 and coarser, base, $1.58; wire nails, $1.78; painted barb wire, $1.78; galvanized, $2.18; polished staples, $1.78; galvanized, $2.18, all Chicago.

Old Material.—With melters of scrap showing a complete lack of interest in scrap at any price, the weakness of the market is increasingly pronounced. The railroads that make it a rule to sell their scrap as fast as it accumulates at the best prices obtainable are accepting exceedingly low quotations, and between dealers transactions are being recorded where the prics are considerably lower than dealers would be willing to sell to consumers. Current offerings of scrap by the railroads aggregate 10,000 tons and include 2400 tons from the Soo Line on two lists, 1000 tons from the Northern Pacific, 2000 tons from the Union Pacific, 2700 tons from the Michigan Central, 1100 tons from the Chicago, St. Paul, Minneapolis & Omaha and 800 tons from the Northern Pacific. We quote for delivery at buyers' works, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton

Old iron rails	$12.00 to $12.50
Old steel rails, rerolling	10.50 to 11.00
Old steel rails, less than 3 ft.	10.25 to 10.50
Old carwheels	11.00 to 11.50
Heavy melting steel scrap	9.00 to 9.25
Frogs, switches and guards, cut apart	9.00 to 9.25
Shoveling steel	8.75 to 9.00
Steel axle turnings	6.75 to 7.25

Per Net Ton

Iron angles and splice bars	$11.50 to $12.00
Iron arch bars and transoms	11.50 to 12.00
Steel angle bars	8.25 to 8.75
Iron car axles	15.00 to 15.50
Steel car axles	11.25 to 11.75
No. 1 railroad wrought	8.25 to 8.50
No. 2 railroad wrought	7.75 to 8.25
Cut forge	7.75 to 8.25
Steel knuckles and couplers	9.00 to 9.50
Steel springs	9.25 to 9.75
Locomotive tires, smooth	9.25 to 9.75
Machine shop turnings	4.75 to 5.00
Cast borings	4.75 to 5.00
No. 1 busheling	7.00 to 7.25
No. 2 busheling	5.50 to 5.75
No. 1 boilers, cut to sheets and rings	6.50 to 7.00
Boiler punchings	9.25 to 9.75
No. 1 cast scrap	9.00 to 9.50
Stove plate and light cast scrap	8.25 to 8.50
Grate bars	8.00 to 8.50
Railroad malleable	8.00 to 8.50
Agricultural malleable	7.50 to 7.75
Pipes and flues	6.00 to 6.25

Cast-Iron Pipe.—The amount of business arising from advertised lettings shows no improvement, and in addition the routing orders which have held up rather out of proportion to other business have diminished in the past ten days. The United States Cast Iron Pipe & Foundry Company has taken 600 tons of intake pipe at Highland Park, Mich., and 100 tons at Springfield, Ohio. Bids are to be taken again at Caspar, Wyo., but the cast pipe will probably not run more than 700 tons. At Sandusky, Ohio, 500 tons of pipe is to be purchased. We quote as follows, per net ton, Chicago: Water pipe, 4 in., $26; 6 to 12 in., $24; 16 in. and up, $23.50, with $1 extra for gas pipe.

Philadelphia

PHILADELPHIA, PA., September 15, 1914.

New demand has eased up in all directions and what reassuring indications there were a week ago are less in evidence. Uncertainty as to the fourth quarter is becoming more acute as that period approaches and discussions of the causes and probable duration of conditions are incessant. Foreign inquiry continues to be received but it has so far resulted in sales of but a few hundred tons. Quotations are being maintained on the theory that prevailing prices can be obtained as readily as could lower ones. An eastern Pennsylvania steel company is about to receive bids on 5500 tons of miscellaneous material, mostly plates and shapes, which it does not manufacture. In pig iron a sale of 5000 tons of pipe iron leads a list of small transactions. The exportation of low-phosphorus pig iron is being considered. Ferromanganese is quiet with offerings promised at $80 to $85 per ton. Several kinds of old material are lower.

Iron Ore.—No imports were recorded at the custom house of this port in the week ended September 12. There is no demand.

Pig Iron.—Since the recent buying of 12,500 tons of basic by an eastern Pennsylvania plate maker there have been no unusually interesting transactions and the aggregate of small orders is probably under that of the previous week, all of which leave the market extremely quiet. From abroad there have come inquiries for about 20 000 tons of low-phosphorus iron to be substituted for English hematite, but no sales resultant therefrom are reported. Domestic consumers are taking small lots of low phosphorus. About 5000 tons of pipe iron has been sold in this territory in the past few days and there is an inquiry out for between 2000 or 3000 tons more, but the offers made by the intending purchaser have so far been declined. A sale of 1000 tons malleable iron of a somewhat special character was made at $16.35, Philadelphia. Both Virginia and Southern iron have been in light demand. The following quotations are named for standard brands for early delivery in buyers' yards in this district:

Eastern Penna. No. 2 X foundry	$14.75 to $15.00
Eastern Penna. No. 2 plain	14.50 to 14.75
Virginia No. 2 X foundry	15.30 to 15.50
Virginia No. 2 plain	15.05 to 15.25
Gray forge	13.75 to 14.00
Basic	14.00
Standard low phosphorus	21.00 to 21.50

Ferroalloys.—The ferromanganese market is quiet and easier in consequence of the heavy shipments now afloat. It is expected that some of the imports in excess of what are needed to fill contracts will be offered at $80 to $85, seaboard. There is no change in 50 per cent. ferrosilicon, quotations ranging from $73, Pittsburgh, for carloads down to $71 for larger quantities.

Bars.—Less new business is coming out, but specifications against old contracts are fair. Bars are holding up better than plates and shapes. The quotation remains at 1.35c., Philadelphia, for steel bars. At this price a local seller bid on 400 tons of nut steel which was placed September 12, but did not get the order, though it was not specifically stated by the buyer that he could get a lower price. Iron bars are quoted at 1.15c., Philadelphia, though cases are known where 1.12c. and even 1.10c. has been taken by mills eager for orders.

Plates.—Local makers are holding their price at 1.35c., Philadelphia, despite a decline in the number of small orders which have been their mainstay for many weeks. It is estimated that representative mills are not working to more than 65 per cent. of capacity.

Those who depend largely on railroad consumption are especially hard hit. A local steel company which does not manufacture plates is about to receive estimates for 165 tons of plates under 8 in., 840 tons, 8 to 36 in. inclusive, and 1680 tons of sheared plates under 100 in.

Structural Material.—New orders continue too light to insure a continuance of the present rate of production for more than a short time. New projects are scarce because of the tightness of money, and a bad bit of news is the reported postponement of the erection of the new terminal of the Hudson & Manhattan Railroad Company in Newark, which is to take 8500 tons. Most of the demand is for plain material. The steel company referred to as in the market for plates is also inquiring for 10 tons of 15-in. 33-lb. channels, 65 tons of 9, 10 and 12 in. special ship channels, 190 tons of 18-in. I-beams, 2280 tons of 6 x 6 in. and under angles, 60 tons of zee bars and 210 tons of slabs 4 and 5 in. thick.

Billets.—Makers are hoping that business will develop from abroad to counteract the light domestic demand. The quotation for open-hearth rolling billets is unchanged at $22.40, Philadelphia. Forging steel, which runs $4 to $5 per ton higher, is adversely affected by the light buying of railroads who use a large part of this product.

Sheets.—Though new demand has tapered off a little, sheets have held up better than other products. Specifications continue to come out in good volume. Quotations are 1.60c. to 1.65c., Philadelphia.

Coke.—There is so little business that prices are practically nominal. Prompt foundry coke is quoted at $2.25 to $2.35 per net ton at oven. Prompt furnace coke is quoted at $1.70 to $1.75 but talk is heard of lower prices. Freight rates to this city from the principal producing districts are as follows: Connellsville, $2.05; Latrobe, $1.85, and Mountain, $1.65.

Old Material.—The more favorable view which was taken of the situation in the early part of last week has disappeared, although at the end of the week there was a slight spurt in rolling-mill demand. At present the market is bearish again and the prices of some materials are lower. Quotations for delivery in buyers' yards in this district, covering eastern Pennsylvania and taking freight rates from 35c. to $1.35 per gross ton, are as follows:

No. 1 heavy melting steel	$10.75 to $11.00
Old steel rails, rerolling	12.00 to 12.50
Low phosphorus heavy melting steel scrap	14.00 to 14.50
Old steel axles	14.75 to 15.25
Old iron axles (nominal)	20.00 to 21.00
Old iron rails	14.00 to 14.50
Old carwheels	11.00 to 11.50
No. 1 railroad wrought	12.00 to 12.50
Wrought-iron pipe	11.00 to 11.50
No. 1 forge fire	8.50 to 9.00
Bundled sheets	8.50 to 9.00
No. 2 light iron	5.00 to 5.50
No. 2 busheling	8.00 to 8.50
Machine shop turnings	8.50 to 9.00
Cast borings	8.50 to 9.00
No. 1 cast	12.00 to 12.50
Grate bars, railroad	8.00 to 8.50
Stove plate	8.50 to 9.00
Railroad malleable	9.00 to 9.50

Cleveland

CLEVELAND, OHIO, September 15, 1914.

Iron Ore.—Present conditions do not indicate that there will be much, if any, speculative buying of ore late this season to hold over until 1915 against the possibility of an advance in price. However, there has been some inquiry recently from buyers who are looking for bargains and who claim that odd lots of Mesaba ore have been offered at 25c. a ton reduction from early season prices. There has been some further curtailment in mining operations recently. Corrigan, McKinney & Co. will shut down their Commodore mine in the Mesaba range this week, leaving only one of their mines in operation. We quote prices as follows: Old range Bessemer, $3.75; Mesaba Bessemer, $3.50; old range non-Bessemer, $3; Mesaba non-Bessemer, $2.85.

Pig Iron.—A northern Ohio company which recently sent out an inquiry for 4000 tons of foundry iron is reported to have purchased that tonnage from a Valley interest. One Cleveland firm reports a few small lot sales aggregating about 1000 tons outside of this immediate territory. Generally the market is unusually dull. No new inquiry is pending even for small lots. Business in foundry lines continues quiet and many foundries are holding back on shipments, and some of these that were expected to need additional iron will have enough to last them the remainder of the year. Southern furnaces are asking $10.25, Birmingham, for No. 2, but a fair inquiry will probably bring out a $10 price. We quote, delivered Cleveland, as follows:

Bessemer	$14.90
Basic	$13.75 to 13.90
Northern No. 2 foundry	13.75
Southern No. 2 foundry	14.60
Gray forge	13.25
Jackson Co. silvery, 8 per cent. silicon	17.55
Standard low phosphorus, Valley furnace	20.50

Coke.—The market is stagnant. Foundry coke is held at $2.25 to $2.50 per net ton at oven for prompt shipment and contract. Furnace coke is quoted at $1.65 to $1.75 for prompt shipment.

Finished Iron and Steel.—Business in finished lines is about as dull as it can be. There is practically no inquiry. The unsettled and unsatisfactory conditions have apparently been aggravated by the tightness of the money market. Manufacturers are unwilling to order material and assume obligations that they may be unable to meet. Some of the banks are reported to have adopted the policy of refusing loans to manufacturers except to meet pay rolls and notes, thus shutting off loans for the payments of bills. This policy is hampering the implement manufacturers and in view of the fact that these sell on a long time some of the implement makers declare they will be forced to reduce production materially unless money becomes easier. It is reported that the order for 35 locomotives placed by the Cincinnati, Hamilton & Dayton Railroad has been held up because of the difficulty in making the necessary financial arrangements. A bright spot in the situation is shown in the activity in structural material. The National Iron & Wire Company has taken 400 tons for the Hippodrome Building in Youngstown; the King Bridge Company, 1500 tons for the East Ohio Gas Company's building in Cleveland; McClintic-Marshall Company, 587 tons, including 70 tons of light rails, for the Midvale-Goshen Coal Company at Parrel, Ohio; the Massillon Bridge & Construction Company, 500 tons for a building in Akron, and the Riverside Bridge Company, 260 tons for viaduct in Massillon. An inquiry is pending for 1000 tons for a Y. M. C. A. building in Canton. Sheets are firm, but very quiet. Most mills are holding to 2c. for No. 28 black and to 3c. for No. 28 galvanized, and some have advarced their price on No. 10 blue annealed to 1.50c. Bar iron continues quiet, with prices unchanged at 1.15c. to 1.20c., Cleveland, for outside shipment, and 1.30c. for local delivery. Stock prices are 1.80c. for steel bars and 1.90c. for plates and structural material.

Bolts, Nuts and Rivets.—The new demand for bolts and nuts is not active, orders being about the rate they have been coming out the past month. Some price shading is still reported. A few contracts for the first half of next year have been closed at an advance in prices over regular quotations. Rivet specifications are for comparatively small lots. Prices are firm at 1.50c. for structural and 1.60c. for boiler. We quote discounts as follows: Common carriage bolts, ⅜ x 6 in., smaller or shorter, rolled thread, 80 and 20 per cent.; cut thread, 80 and 15 per cent.; larger or longer, 75 and 15 per cent.; machine bolts with h. p. nuts, ⅜ x 4 in., smaller or shorter, rolled thread, 80 and 25 per cent.; cut thread, 80 and 20 per cent.; larger or longer, 80 per cent.; coach and lag screws, 80 and 25 per cent.; square h. p. nuts, blank or tapped, $6.30 off; hexagon h. p. nuts, blank or tapped, $7.20 off; c. p. c. and t. square nuts, blank or tapped, $6 off; hexagon, ⅝ in. and larger, $7.20 off; 9/16 in. and smaller, $7.80 off; semi-finished hexagon nuts, ⅝ in. and larger, 85, 10 and 5 per cent.; 9/16 in. and smaller, 85, 10, 10 and 5 per cent.

Old Material.—The demand is at a very low ebb. A number of mills still have material coming on contracts that should have been cleaned up several weeks

ago. Because of the financial situation few consumers care to buy for future delivery and some are using up stocks in their yards rather than take on other scrap at low prices. Youngstown mills are accepting little material and are not in the market. Yard deliveries still have large stocks on hand. Old iron rails are weaker. Other quotations are generally unchanged. Dealers' prices, f.o.b. Cleveland, are as follows:

Per Gross Ton

Old steel rails, rerolling	$11.50 to $12.00
Old iron rails	12.50 to 13.00
Steel car axles	15.00 to 15.25
Heavy melting steel	10.00 to 10.25
Old carwheels	11.25 to 11.50
Relaying rails, 50 lb. and over	23.00 to 25.00
Agricultural malleable	8.50 to 9.00
Railroad malleable	10.25 to 10.50
Light bundled sheet scrap	7.50 to 8.00

Per Net Ton

Iron car axles	$17.00 to $17.25
Cast borings	5.75 to 6.00
Iron and steel turnings and drillings	5.25 to 5.50
Steel axle turnings	6.75 to 7.25
No. 1 busheling, new	8.25 to 8.50
No. 1 busheling, old	8.25
No. 1 railroad wrought	9.50 to 10.00
No. 1 cast	10.50 to 10.75
Stove plate	7.50 to 8.00

Cincinnati

CINCINNATI, OHIO, September 16, 1914.—(*By Wire.*)

Pig Iron.—Several sales agencies report the past week as the dullest in the history of the trade here. A few new orders are coming in but they are principally for carload lots that are urgently needed. The largest sale openly reported is for 200 tons of Northern foundry iron for prompt shipment. It is understood that some business is being done quietly by salesmen. No orders for next year's delivery have been booked as the furnaces do not seem willing to open their books for the first quarter in the face of the fact that considerable iron is due on contracts for shipment this year. While there have not been many cancellations, the reluctance of melters to accept iron previously ordered is not a very encouraging feature for the producers. It is generally thought that the present dull period is only a breathing spell and that business will open up at an early date. There is a reported increase in the stocks of Southern iron being piled on furnace yards, but prices are firm, with $10, Birmingham, as a minimum for prompt shipment, and with the majority of furnaces in that territory holding out for 25c. to 50c. a ton higher for either prompt or last quarter delivery. Northern foundry basic and malleable are quoted at $13, Ironton, for any shipment before January 1. Ohio silvery irons are inactive, with only a few carloads changing hands, but the minimum price is $16 at furnace. It is understood that basic consumers in this territory will soon be compelled to buy for a future supply. Based on freight rates of $3.25 from Birmingham and $1.20 from Ironton we quote, f.o.b. Cincinnati, as follows:

Southern coke, No. 1 f'dry and 1 soft	$13.75 to $14.25
Southern coke, No. 2 f'dry and 2 soft	13.25 to 13.75
Southern coke, No. 3 foundry	12.75 to 13.25
Southern No. 4 foundry	12.25 to 12.75
Southern gray forge	11.75 to 12.25
Ohio silvery, 8 per cent. silicon	17.20 to 17.70
Southern Ohio coke, No. 1	15.20 to 15.70
Southern Ohio coke, No. 2	14.20 to 14.70
Southern Ohio coke, No. 3	13.95 to 14.20
Southern Ohio malleable Bessemer	14.20
Basic, Northern	14.45 to 14.95
Lake Superior charcoal	15.25 to 17.25
Standard Southern carwheel	27.25 to 27.75

(*By Mail*)

Coke.—For furnace coke in this territory no business is now in sight. The consumption is so limited that sellers are not seeking orders. Coke for domestic uses is in slow demand and many shipments on old contracts have been held up, but this condition cannot exist much longer considering the approach of winter. A few odd lots of foundry coke are being taken by consumers who have no stocks, but the total tonnage is comparatively negligible for the season. Prices are unchanged at $1.75 to $2 per net ton at oven for 48-hr. coke, and from $2.25 to $2.50 for 72-hr. coke in all three fields. Connellsville producers are reported to have made concessions on foundry coke for prompt shipment, but nothing below $2.25 at oven has been done in this territory, and most standard brands are held at a higher figure.

Finished Material.—With the exception of black and galvanized sheets business is slack in all lines. A few contracts for structural material are in sight, but the nearness of winter makes it problematical as to the placing of these this year. These contracts include several bridges destroyed by the flood two years ago that have not yet been replaced, and in a few instances the necessary material has not been ordered. The structural mills continue to receive a fairly satisfactory number of small orders both from jobbers and consumers, and the fact that prompt shipment is wanted on practically all of these is considered somewhat encouraging. The mill price of No. 28 black sheets is 2.15c., Cincinnati, or Newport, Ky., and on galvanized 3.15c. No. 10 blue annealed remains at 1.45c., Pittsburgh basis. Local warehouse quotations on steel bars and structural shapes are from 1.80c. to 1.85c. There is very little retail business.

Old Material.—The market continues to lag, and there is no demand for any particular kind of scrap. It is rumored that the rolling mills will probably cover for future requirements soon, but the large supply they have on hand or under contract presents a condition somewhat at variance with this report. The minimum figures given below represent what buyers are willing to pay for delivery in their yards, southern Ohio and Cincinnati, and the maximum quotations are dealers' prices, f.o.b. at yards:

Per Gross Ton

Bundled sheet scrap	$6.75 to $7.25
Old iron rails	11.75 to 12.25
Relaying rails, 50 lb. and up	19.75 to 20.25
Rerolling steel rails	10.75 to 11.25
Melting steel rails	9.25 to 9.75
Old carwheels	10.25 to 10.75

Per Net Ton

No. 1 railroad wrought	$8.75 to $9.25
Cast borings	4.50 to 5.00
Steel turnings	4.50 to 5.25
Railroad cast scrap	9.25 to 9.75
No. 1 machinery cast scrap	10.25 to 11.25
Burnt scrap	6.00 to 6.75
Old iron axles	15.50 to 16.00
Locomotive tires (smooth inside)	9.75 to 10.25
Pipes and flues	6.25 to 6.75
Malleable and steel scrap	7.25 to 7.75
Railroad tank and sheet scrap	5.25 to 5.75

Buffalo

BUFFALO, N. Y., September 15, 1914.

Pig Iron.—Extreme quiet characterizes the market this week with respect to new business. The artificial condition brought about by the war continues and less than a normal amount of business is being done by foundries in many lines. The stove trade is especially poor. Few requests for suspension or diminution of shipments on contracts are noted, as users bought conservatively, as a rule, and deliveries are going forward in good volume. One producer reports shipment of 50 carloads in one day this week and some shipments are also going out via Erie Canal. It is understood that some concessions in price are being made on the higher grades, for prompt or early shipment. We quote as follows for last half delivery, f.o.b. furnace at Buffalo:

No. 1 foundry	$13.50 to $14.00
No. 2 X foundry	13.00 to 13.50
No. 2 plain	13.00 to 13.25
No. 3 foundry	13.00
Gray forge	13.00
Malleable	13.00 to 13.50
Basic	14.00
Charcoal, regular brands and analysis	16.25 to 17.25
Charcoal, special brands and analysis	20.50

Finished Iron and Steel.—A large number of single carload orders in bars, shapes, plates, wire, nails and tin plate have been reported for the week, denoting that many customers are buying material for immediate consumption, but in small lots. Some buyers have shown a disposition to negotiate for contracts covering material into next year, but mills as a rule are not inclined to consider such business, not caring to bind themselves to definite prices for far forward deliveries. Where mills have quoted on such proposals it has been at figures that would not ordinarily result in the booking of business. In structural lines the majority of fabricators of the district report their shops busy but drafting departments approaching a state of idleness, little new business being in sight.

Old Material.—The slight improvement in demand shown last week has eased off and the only commodity in which betterment is noted is locomotive grate bars, the price having advanced 50c. per ton. The mills that were taking scrap last week have covered their requirements and are out of the market. There is a weakness in iron and steel car axles, and prices on these two items have sagged; in fact, it is almost impossible to sell them at any price and the quotations shown below are only nominal. The demand for wrought and cast scrap is also off. Consumers who are willing to take in stock want a considerable concession in price, but dealers are not inclined to make material reductions. We quote dealers' selling prices as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel	$10.25 to $10.50
Low phosphorus steel	14.00 to 14.50
Boiler plate sheared	11.50 to 12.00
No. 1 railroad wrought scrap	10.00 to 10.50
No. 1 railroad and machinery cast	10.25 to 10.75
Old steel axles	12.00 to 12.50
Old iron axles	17.50 to 18.00
Old carwheels	10.50 to 11.00
Railroad malleable	9.00 to 9.50
Machine shop turnings	5.50 to 6.00
Heavy axle turnings	7.50 to 8.25
Clean cast borings	6.00 to 6.50
Old iron rails	12.25 to 12.75
Locomotive grate bars	9.00 to 9.50
Stove plate (net ton)	9.00 to 9.75
Wrought pipe	7.50 to 8.00
Bundled sheet scrap	6.25 to 6.50
No. 1 busheling scrap	8.25 to 8.75
No. 2 busheling scrap	5.75 to 6.25
Bundled tin scrap	10.50

Birmingham

BIRMINGHAM, ALA., September 14, 1914.

Pig Iron.—The quiet spell in this market is largely accredited in some circles to uncertainty prevailing as to the time when the lower freight rates to Eastern and Middle Western territory would go in effect. Now that October 1 is known to be the date it is expected that buying for the remainder of the year will become more active. Sales reported cover but a small tonnage, the principal item being an order for gray forge for competitive territory delivery booked at $9. Small lots of No. 2 were sold at $10.25, one dealer receiving as much as $10.50 for scattered lots to regular customers. The one interest still quoting $10 does not appear to be doing much business, which is not surprising, as it is out of the manufacture of foundry iron for the time being. The feature of the past month was the great increase in the manufacture of basic iron, the August output exceeding that of July by over 20,000 tons. It is stated in iron circles generally that no more than usual stop shipment orders have been received since the European war started. The average quotation and apparently the average price obtained for Birmingham iron is $10.25. North Alabama furnaces and Tennessee iron can undercut this level owing to freight differentials. Inquiries from the Middle West are reported as better than from other points. Foundry operations in the South are on about a 50 per cent. basis, with little prospect of an early improvement. We quote, per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 1 foundry and soft	$10.50 to $11.00
No. 2 foundry and soft	10.00 to 10.50
No. 3 foundry	9.50 to 10.00
No. 4 foundry	9.25 to 9.75
Gray forge	9.00 to 9.50
Basic	10.00 to 10.25
Charcoal	23.50 to 24.00

Cast-Iron Pipe.—It has been an uneventful week in the pipe trade. Operations continue on a 75 per cent. basis, with larger sizes more in demand than the smaller ones. The leading interest continues to operate on Panama Canal business. The sanitary pipe shops report trade dull. We quote, per net ton, f.o.b. pipe shop yards, as follows: 4 in., $20.50; 6 in. and upward, $18.50, with $1 added for gas pipe.

Coal and Coke.—There has been no improvement in the coal trade. It is understood that an average of operations with the larger operators is three days per week. Coke holds its own at good prices because several of the larger producers have shut down their plants. We quote, per net ton, f.o.b. oven, as follows: Furnace coke, $2.75 to $3; foundry coke, $3.25 to $3.50.

Old Material.—It has been a flat week with the old material dealers, the spurt of two weeks ago having given way to small sales at prices fixed according to individual transactions. However, with steel works still on good time, dealers expect a fair business. We quote, per gross ton, f.o.b. dealers' yards, as follows:

Old iron axles	$14.50 to $15.00
Old steel axles	14.50 to 15.00
Old iron rails	13.00 to 13.50
No. 1 railroad wrought	10.00 to 11.00
No. 2 railroad wrought	8.50 to 9.00
No. 1 country wrought	9.00 to 10.00
No. 2 country wrought	8.00 to 9.00
No. 1 machinery cast	9.50 to 10.00
No. 1 steel scrap	8.00 to 8.50
Tram carwheels	9.50 to 10.00
Standard carwheels	10.50 to 11.00
Stove plate	8.00 to 8.50

St. Louis

ST. LOUIS, MO., September 14, 1914.

Pig Iron.—Business of the week was confined to small lots with one transaction of 300 tons, all of either No. 2 Southern foundry or No. 2 Northern. The encouraging feature was the widespread character of the purchases and the urgency as to delivery. There is one inquiry for 1500 tons of No. 2, required for delivery over the last quarter, and known to be needed. A feature of the week has been some purchases, though small, in which high manganese content was required. The ferromanganese market has been active, but with no large purchases.

Coke.—Sales have been small with the single exception of one transaction of 1000 tons of by-product coke for nearby delivery. Prices have been rather weaker so far as large contracts have been concerned. By-product coke is $4.90 to $5.05, delivered, St. Louis.

Finished Iron and Steel.—Specifications on contracts have been fair, but there has been little or no disposition to buy for the future. Bars are moving better than the rest of the list, but the largest item is 275 tons bought for the foundation work for the Oklahoma State Capitol, the Capitol Steel & Iron Company having the contract. Movements out of warehouse stock continue to show a disposition to buy at the higher price rather than make contracts at mill prices. We quote out of store as follows: Soft steel bars, 1.70c.; structural steel, 1.80c.; tank plates, 1.80c.; No. 10 blue annealed sheets, 2c.; No. 28 black box annealed, cold rolled, 2.55c.; No. 28 galvanized sheets, black sheet gauge, 3.55c.

Old Material.—The steel mills are taking less material and at least one is announced to close October 1 if conditions do not improve. Relaying rails are in better demand, but there is no supply to meet the request. Lists out in the week include 300 tons from the Vandalia, 2000 tons from the Union Pacific, St. Louis delivery; 1500 tons from the Missouri, Kansas & Texas; 1000 tons from the Minneapolis & St. Louis, and 1200 tons from the Chicago, St. Paul, Minneapolis & Omaha. We quote dealers' prices, f.o.b. St. Louis, as follows:

Per Gross Ton	
Old iron rails	$11.00 to $11.25
Old steel rails, rerolling	11.25 to 11.50
Old steel rails, less than 3 feet	10.50 to 10.75
Relaying rails, standard section, subject to inspection	21.00 to 23.00
Old carwheels	11.00 to 11.25
No. 1 railroad heavy melting steel scrap	10.00 to 10.25
Shoveling steel	8.00 to 8.75
Frogs, switches and guards, cut apart	10.00 to 10.25
Bundled sheet scrap	5.00 to 5.25
Per Net Ton	
Iron angle bars	$10.00 to $10.50
Steel angle bars	8.75 to 9.00
Iron car axles	16.75 to 17.25
Steel car axles	11.75 to 12.25
Wrought arch bars and transoms	11.00 to 11.50
No. 1 railroad wrought	8.00 to 8.25
No. 2 railroad wrought	8.00 to 8.25
Railroad springs	9.25 to 9.50
Steel couplers and knuckles	8.75 to 9.00
Locomotive tires, 42 in. and over, smooth	8.75 to 9.25
No. 1 dealers' forge	7.75 to 8.00
Mixed borings	4.00 to 4.25
No. 1 busheling	7.25 to 7.50
No. 1 boilers, cut to sheets and rings	5.75 to 6.25
No. 1 cast scrap	9.50 to 10.00
Stove plate and light cast scrap	8.25 to 8.75
Railroad malleable	8.00 to 8.25
Agricultural malleable	7.50 to 8.00
Pipes and flues	5.75 to 6.25
Railroad sheet and tank scrap	5.75 to 6.00
Railroad grate bars	7.25 to 7.50
Machine shop turnings	5.00 to 5.25

San Francisco

SAN FRANCISCO, CAL., September 8, 1914.

The slight acceleration of buying that started early in August seems to have been checked. Little new business has been sent in to the mills since the first of the month. The jobbing movement, also, has so far been below expectations. The recent buying will put no really large stocks in the hands of Pacific coast merchants, but, with requirements fairly well covered for a month or two, the trade has resumed its former waiting policy. The consuming demand among the lumber, mining and oil industries is greatly curtailed, and the immediate outlook in these lines is not encouraging. Conditions are much more favorable in the agricultural districts, where a normal, though perhaps rather late, fall business is expected.

Bars.—Local mills are getting out reinforcing bars on a few large contracts, but new business is limited, as many construction projects are held in abeyance. Merchants are still receiving some foreign material, and are buying practically nothing at present, while the distributive trade in soft steel bars is hardly as active as it should be at this season. The leading interest is quoting bars from store in carloads at 2c., and jobbers' resale prices on small lots are generally held at 2.25c.

Structural Material.—Sanderson & Porter, this city, engineers for the Valley Pipe Line Company's project, have just received figures for a lot of oil-pumping stations which will require a considerable tonnage. Aside from this there is practically nothing new in the market, and no new contracts of any consequence are reported, the tonnage on small jobs being rather insignificant, even in the aggregate. Architect L. P. Hobart, this city, will draw plans for a post office at Portland, Ore., to cost about $1,000,000, but it will not be ready for bids for some time.

Rails.—The tonnage on scattering orders for standard sections is holding up on about the same scale as last month, but no purchases of an important nature appear to be even contemplated for the immediate future. The demand for light rails is greatly restricted, though one tentative inquiry has come out for about 20 miles for a quarry development.

Plates.—Little new business has come out this month, and important inquiries are lacking. The active season for irrigation pipe is over, and business in connection with hydroelectric development is of a scattering and unimportant nature. Most of the oil companies are retrenching, though some further increase of storage and distributing facilities is still necessary.

Sheets.—The buying movement among jobbers and manufacturers has subsided, after providing for a moderate increase of stocks. Contracting for fourth quarter has not been general, and a number of mills are still refusing to take contracts. Distributive business in corrugated sheets shows a little more life, as usual at this season, and considerable activity is expected later in the month; but other lines are quiet. Local prices are held on the basis of current Pittsburgh quotations.

Standard Pipe.—The first lots shipped through the Panama Canal are now arriving, and further shipments on orders placed last month will give the local trade a fair supply. Most merchants have withdrawn from the market for the present. Jobbing trade in the country has been fair up to this week, and an early resumption in that quarter is expected, but the city trade is slow. Business in the oil fields appears absolutely lifeless.

Cast-Iron Pipe.—The city of San Diego has placed an order for about 300 tons with the United States Cast Iron Pipe & Foundry Company, and the gas company at Los Angeles is figuring on 300 or 400 tons. There is little other business in sight, municipal projects being quite generally delayed by the difficulty in selling bonds at the rates formerly prevailing. Prices remain at $32 per net ton for 6 in. and over; $34 for 4 in., and $1 extra for gas pipe.

Pig Iron.—Nothing of special interest has developed in the last fortnight, except for a slightly firmer feeling among importers. No quotations are given out, but it is understood that a little higher price is being asked on private transactions. The demand in the foundry trade, however, shows no immediate sign of revival. Some buying is expected before long on the part of Pacific coast steel manufacturers, but they are not yet definitely in the market. There is plenty of iron for current needs in coast warehouses and afloat, and importers no longer feel much anxiety about the possibility of shipping from England or other usual foreign sources.

Coke.—So far nothing definite has been done toward replenishing the supply from domestic sources, as several shipments of foreign coke are still expected to arrive, and there is little demand. Foundry requirements remain light, and the smelter business has been greatly curtailed. German Syndicate coke is quoted at the local yards at about $14 per net ton.

Old Material.—Cast-iron scrap is in fair, but by no means heavy, demand. Supplies are rather firmly held, with quotations $16.50 to $17 per net ton. Several good-sized sales of steel melting scrap have been closed lately at prices ranging from $6 to $8 per gross ton, while a considerable tonnage is held in local yards at higher figures. The leading consumers, however, maintain that present conditions do not warrant fancy prices for this material.

The Noble Electric Steel Company, San Francisco, has called a special meeting of stockholders for November 6 to act on a proposition to increase the capital stock from $1,000,000 to $1,500,000.

New York

NEW YORK, September 16, 1914.

Pig Iron.—Comparatively little new business has come up through New York offices. Two New England manufacturers of textile machinery are reported to have been in the market in the past week. One of these has bought some iron. The amount is not known, being variously reported from 1000 tons to several thousand tons. Offers by New England buyers have not been attractive to the furnaces, some of these having been around $15, delivered, which would figure out very close to $12.50, Buffalo, for No. 2 X. It has not been supposed that anything below $13 would be considered by the furnaces and some of them are asking more. Trade with Canada from Buffalo furnaces has been slack. The Port Colburne furnace recently blew out and there is no free shipment of pig iron into Canada on contracts already existing. The question of credits naturally has very careful consideration. In this market an inquiry for several hundred tons for two plants of a railroad supply company is still pending. Recent Eastern purchases of pipe iron have been limited to the Philadelphia district. In one or two instances important foundry interests in the New York district are carrying large stocks of pig iron, but generally foundry yard stocks are only moderate, and in most cases shipments are going forward according to contract. The tendency is toward further curtailment of pig iron production. We quote Northern iron for tidewater delivery as follows: No. 1 foundry, $14.75 to $15; No. 2 X, $14.25 to $14.50; No. 2 plain, $14 to $14.25. Southern iron is quoted at $14.75 to $15 for No. 1 and $14.25 to $14.50 for No. 2.

Ferroalloys.—Evidence that the situation regarding the supply of ferromanganese is considerably easier is contained in the fact that for delivery on new contracts for the rest of the year the price of the English product has been reduced to $80, seaboard. This follows reports of sales of domestic ferromanganese at $85. Regular supplies are being shipped from England and it is estimated that at least 6000 tons are afloat, with the arrival during the last week of about 4000 tons. There is very little new business or contracting beyond the end of the year. Consumers feel that the prospects are considerably better for their demands being taken care of for the remainder of the year. Rumors that some resale metal has been disposed of at $75, seaboard, were not verified. Ferrosilicon, 50 per cent., is unchanged at $71 to $73, Pittsburgh.

Finished Iron and Steel.—With the larger fabricating concerns at least filled with work for the remainder of the year, and in some cases for six or more months, prices are holding steady in line with those for plain material. This notwithstanding the low level of new buying as indicated by the report of the bridge builders' society noted elsewhere in this issue explaining that orders booked in August amounted to no more than 27½ per cent. of capacity. The situation is unchanged in respect to the small amount of new buying for material and also in respect to the fair run of specifications on contract. Another line on stiffness of price is indicated by the action of one large bar iron producer which is not taking any future business at as low as 1.15c. mill. Neither inquiries nor orders have developed in railroad car construction. Eastern plate mills are trying to get 1.20c., Pittsburgh, and are running at about 60 per cent. capacity but without well filled order books. In structural lines about the only business of size in this territory is some railroad work for the New York Central, about 400 tons, going to Lewis F. Shoemaker & Co., and nearly as much to the Fort Pitt Bridge Works, and 800 tons for the Pictorial Review addition, West Thirty-ninth street, awarded to the Levering & Garrigues Company. We quote mill shipments of steel bars, plates and shapes at 1.20c., Pittsburgh, or 1.36c., New York, and iron bars at 1.25c. to 1.30c., New York. For lots from store we quote iron and steel bars at 1.80c. to 1.85c., New York, and plate and structural material at 1.85c. to 1.90c.

Cast-Iron Pipe.—The only public letting of importance in this territory this week is that of the District Commissioners at Washington, D. C., calling for 1000 tons of 8 in., on which bids were to be opened yesterday. That competition of the sharpest character still prevails among the pipe founders was shown by the bids received on 300 tons of 8 in. by the city of Yonkers, N. Y., September 8. The prices submitted were lower than any previously made in this district. Private buying keeps up remarkably well for the season, a steady volume of business of this character continuing to come out. Inquiries from foreign countries are increasing and negotiations are proceeding for good quantities, among which may be mentioned several thousand tons for Brazil. Nominal quotations on carload lots of 6 in. are $20.50 to $21 per net ton, tidewater.

Old Material.—The situation fails to improve. The few buyers who were in the market about ten days ago, and whose appearance had been greeted as probably indicating the beginning of a better buying movement, evidently secured what they wanted and have not been persuaded to purchase more by offerings at lower prices. The outlook is discouraging for those who have been holding for better prices. Dealers' quotations are as follows, per gross ton, New York:

Old girder and T rails for melting	$8.00 to	$8.50
Heavy melting steel scrap	8.00 to	8.50
Relaying rails	20.50 to	21.00
Rerolling rails	10.25 to	10.75
Iron car axles	17.25 to	17.75
Steel car axles	12.25 to	12.75
No. 1 railroad wrought	10.25 to	10.75
Wrought-iron track scrap	9.25 to	9.75
No. 1 yard wrought, long	8.50 to	9.00
No. 1 yard wrought, short	8.00 to	8.50
Light iron	3.25 to	3.50
Cast borings	6.50 to	7.00
Wrought turnings	6.00 to	6.50
Wrought pipe	8.00 to	8.50
Carwheels	9.50 to	10.00
No. 1 heavy cast, broken up	10.25 to	10.75
Stove plate	7.75 to	8.25
Locomotive grate bars	6.50 to	7.00
Malleable cast	7.50 to	8.00

Boston

BOSTON, MASS., September 15, 1914.

Old Material.—The market shows signs of weakness, as a result of the decreased activity of speculators who are more willing to sell at current quotations, but consumers manifest little inclination to increase their stocks of scrap. The quotations given below are based on prices offered by the large dealers to the producers and to the small dealers and collectors, per gross ton, carload lots, f.o.b. Boston and other New England points which take Boston rates from eastern Pennsylvania points. In comparison with Philadelphia prices the differential for freight of $2.30 a ton is included. Mill prices are approximately 50c. per ton more than dealers' prices.

Heavy melting steel	$8.50 to	$8.75
Low phosphorus steel	13.75 to	14.75
Old steel axles	13.25 to	13.75
Old iron axles	21.25 to	21.75
Mixed shafting	12.00 to	12.25
No. 1 wrought and soft steel	9.00 to	9.25
Skeleton (bundled)	5.50 to	5.75
Wrought-iron pipe	8.00 to	8.25
Cotton ties (bundled)	6.25 to	6.50
No. 2 light	3.75 to	4.25
Wrought turnings	5.00 to	5.50
Cast borings	5.25 to	5.75
Machinery cast	11.25 to	11.50
Malleable	8.00 to	8.25
Stove plate	7.75 to	8.00
Grate bars	5.25 to	5.50

British Market Firm

Not Much Business but Tone Firm—Continued Inquiries for American Steel

(By Cable)

LONDON, ENGLAND, September 16, 1914.

Very little movement is taking place in pig iron, but the tone is pretty firm, partly owing to labor scarcity and the falling output of Cleveland district furnaces. Stocks of pig iron in Connal's stores are 98,216 gross tons, against 95,659 tons last week. Finished iron is firm, with very fair orders for bars. Not much business is being done in steel, but the tone is also firm. Continued inquiries come out for American semi-finished steel, but prices asked are too high. The ferromanganese position is unaltered. Tin plates are irregular. Rails are weaker, mills wanting orders. Such quotations as are available are as follows:

Tin plates, coke, 14 x 20, 112 sheets, 108 lb., f.o.b. Wales, 13s. ($3.16) upward.

Cleveland pig iron warrants (Tuesday), 51s. ½d. ($12.42), against 51s. ($12.41) last week.

No. 3 Cleveland pig iron, makers' price, f.o.b. Middlesbrough, 51s. 4½d. ($12.50), against 51s. 3d. ($12.47) last week.

Steel black sheets, No. 28, export, f.o.b. Liverpool, £9 10s. ($46.22).

Steel ship plates, Scotch, delivered local yards, £7 ($34.06), against £6 15s. ($32.84) last week.

Steel rails, export, f.o.b. works' port, £6 5s. ($30.41), against £6 10s. ($31.62) last week.

Hematite pig iron, f.o.b. Tees, 67s. 6d. ($16.42), against 70s. ($17.03) last week.

Sheet bars (Welsh), £5 5s. to £5 10s. ($25.55 to $26.76), delivered at works in Swansea Valley.

Steel joists, 15 in., export, f.o.b. Hull or Grimsby, £7 ($34.06).

Steel bars, export, f.o.b. Clyde, £7 2s. 6d. ($34.67).

British Works Gain by the Destruction or Crippling of Continental Plants

(By Mail)

LONDON, ENGLAND, September 4, 1914.

The markets all round are steady to firm, and if there is not a great deal of business being done, the average British maker is quite convinced that it is only a case of holding on to enable him to reap his reward in the end. The war has already resulted in serious loss to Belgian steel companies. Thus the well known Ougree-Marihaye works at Liege have been wiped out and many employees there have lost their lives. The work of destruction has involved also a great part of the Cockerill plant at Seraing. The Ougree-Marihaye works cover 260 acres and comprise 60 coke ovens, eight blast furnaces, and a steel plant covering 90 acres and turning out 750,000 tons of finished steel a year.

As long as the British Isles are not invaded, British industry is likely to benefit by the misfortunes of the Belgians in this respect. The German works, too, are idle, owing to the withdrawal of men, or at least their operations are greatly reduced, and under no circumstances can they cut any figure in the export markets.

Exports of pig iron from the Tees have been cut into enormously, the gross clearances last month having been only 32,000 tons, of which 24,000 tons went to

the home trade and 800 tons abroad. Of the exports Norway took 1900 tons, Italy 1500 tons, Belgium 1200 tons, France 200 tons, Germany 800 tons, and Holland nil. The total clearances for the eight months were 724,000 tons, of which 335,000 tons went to the home trade and 389,000 tons went abroad.

There has been a fairly steady tone in the Glasgow warrant market, but business is on the smallest scale. As regards trade with consumers, the orders are of a retail character only, and there is no intention of buying far ahead. Ore prices have eased down with the ample supplies coming in, partly diverted cargoes, and it is possible to pick up Rubio below 19s. ($4.62), c.i.f. Tees. Freights from Spain have come down appreciably and this tends to further ease in the position. Coke still remains dear, comparatively speaking, and the uncertainty of the position in this respect makes furnace companies, especially in the Midlands, chary of quoting for future business.

In the finished iron trade output is restricted by the heat and by the formation of Lord Kitchener's army, and prices have an upward tendency. Best finished iron bars are firm at £9 (1.95c. per lb.) and makers of common iron are finding the withdrawal of foreign competition a veritable boon, many of them now asking up to £8 (1.84c.) for common grades. Strip is £7 10s. ($36.49) to £7 12s. 6d. ($37.10) for gas qualities in the Midlands, and some sales of American material are reported for Scotland, but cannot be confirmed.

Metal Market

NEW YORK, September 16, 1914.

The Week's Prices

Cents Per Pound for Early Delivery

	Copper, New York			Lead		Spelter	
Sept.	Lake	Electrolytic	Tin, New York	New York	St. Louis	New York	St. Louis
9	13.00	12.25	33.00	3.87½	3.70	5.75	5.70
10	12.75	12.12½	32.25	3.87½	3.70	5.70	5.55
11	12.75	12.12½	31.75	3.87½	3.70	5.60	5.45
12	12.75	12.12½	.....	3.87½	3.70	5.55	5.40
14	12.75	12.12½	31.50	3.87½	3.70	5.50	5.35
15	12.75	12.12½	31.35	3.87½	3.70	5.45	5.30

Copper is dull and lower. Tin has declined and there appear to be more sellers than buyers. Lead is easier. Spelter has declined steadily. The nominal prices of antimony are lower.

New York

Copper.—The only activity has been in scattered small lots of electrolytic, quotations for which range from 12.25c. to 12.37½c., cash, 30 days. Small lots have been sold at 12.12½c., cash, New York, and possibly a little lower. Two of the larger sellers are said to be holding for at least 12.37½c., cash, New York, but it is pretty certain that they are doing no business on this basis. Prime Lake is quoted at 13c., but this is nominal and business could probably be done at 12.75c., cash, New York. The exports this month total 8788 tons. They are going forward at the rate of about 18,000 tons per month, and the foreign supply is believed to be ample for all the needs now existing abroad. England is taking most of the current exports.

Tin.—This market is almost entirely nominal, with spot metal quoted yesterday at 31.35c., which is lower than prices which prevailed before the war. What business is being done is almost entirely against shipments now en route to this country, which are heavy. The Menominee, in to-day, brings 850 tons, while the Minnewaska, due September 22, is bringing 725 tons. It is difficult to get dealers to quote on future deliveries, most of them asking for bids as they have been doing for some weeks. It indicates that they do not want to name their bottom price, which might possibly send the market lower. September deliveries will be cared for easily, inasmuch as about 3500 tons will be available, but it is not so easy to determine how October will fare. At the same time it is safe to assume that London operators and dealers will want to realize on any metal they will have and this it will be difficult to do in England. Cable advices indicate that most of the London sales are confined to 5-ton lots. There is now afloat 2675 tons and arrivals this month total 2047.

Lead.—Business has been extremely dull and the St. Louis price has declined to 3.70c., though in New York 3.87½c. is still quoted. Letters from London indicate that the market there has broken.

Spelter.—Since the first of August between 5000 and 6000 tons has been exported, and while the exports are still going forward in good volume buying has entirely ceased on behalf of foreign shipments. Free offerings in this country have further weakened the market. The New York quotation to-day is 5.45c. and St. Louis 5.30c.

Antimony.—The market is inactive at 11c. for Hallett's, 12c. for Cookson's and 10c. for other grades. Consumers are well supplied and in the recent flurry some of them tried to sell. Bonded warehouses on September 1 contained 1,190,356 lb. as against 3,601,015 lb. on the same day a year ago.

Old Metals.—Very little business is being done. Dealers' selling prices are nominally as follows:

	Cents per lb.
Copper, heavy and crucible	12.00 to 12.25
Copper, heavy and wire	11.50 to 11.75
Copper, light and bottoms	10.50 to 11.00
Brass, heavy	8.50 to 8.75
Brass, light	6.25 to 6.50
Heavy machine composition	11.50 to 11.75
Clean brass turnings	8.25 to 8.50
Composition turnings	9.75 to 10.00
Lead, heavy	3.60
Lead, tea	3.40
Zinc scrap	4.50

Chicago

SEPTEMBER 14.—The market displays a gradually weakening condition in all directions. Sharp concessions are being made in copper to induce purchases and the predicted slump in tin appears to be well on its way. Spelter quotations are much lower and a considerable decline is noted in antimony. We quote as follows: Casting copper, 12.25c. to 12.50c.; Lake copper, 12.50c. to 12.75c., for prompt shipment; small lots, ⅛c. to ¼c. higher; pig tin, carloads, 32.50c.; small lots, 35c.; lead, desilverized, 3.85c., and corroding, 4.10c., for 50-ton lots; in carloads, 2½c. per 100 lb. higher; spelter, 5.45c.; Cookson's antimony, 14c. for cask lots; other grades, 10c. to 14c. On old metals we quote buying prices for less than carload lots as follows: Copper wire, crucible shapes, 11c.; copper bottoms, 9.75c.; copper clips, 10.25c.; red brass, 10.25c.; yellow brass, 7c.; lead pipe, 3.30c.; zinc, 3.50c.; pewter, No. 1, 23c.; tinfoil, 33c.; block tin pipe, 35c.

St. Louis

SEPTEMBER 14.—Non-ferrous metals have been less excited the past week and quotations generally have been maintained on a more even line. To-day's prices are as follows: Lead, 3.70c.; spelter, 5.50c.; tin, 34c.; Lake Copper, 13.25c.; electrolytic copper, 13.15c.; Cookson's antimony, 13c. In the Joplin ore district there was considerable weakness in zinc blende, $46 per ton being the best price paid for 60 per cent., the quotation ranging down to $44, with the choicest running to $49. Calamine was in good demand at $24 to $25, with the best as high as $30. Lead ore was steady at the price which has prevailed all summer, $46 for 80 per cent. Miscellaneous scrap metals are quoted as follows: Light brass, 5c.; heavy yellow brass, 7c.; heavy red brass and light copper, 8.50c.; heavy copper and copper wire, 10c.; zinc, 3c.; lead, 3c.; tea lead, 3c.; pewter, 20c.; tinfoil, 29c.

Iron and Industrial Stocks

NEW YORK, September 16, 1914.

Another week has passed with the New York Stock Exchange closed and no authoritative quotations on iron and industrial stocks available. Nothing has yet transpired to indicate when the re-opening of the exchange may be expected.

Dividends Declared

Directors of the Republic Iron & Steel Company decided September 14 to defer action on the quarterly preferred stock dividend of 1¾ per cent. which normally

is paid October 1. A payment of 1 per cent. in warrants will be made on that date on account of dividends in arrears, and cash provision has been made to retire the balance of first mortgage bonds, amounting to $653,000. The directors decided to conserve resources because of the unprecedented condition of business as the result of the European war. Earnings in the present quarter were somewhat better than last, when surplus had to be drawn upon to the extent of $250,000 to make the usual payment on the preferred shares. The stock is cumulative, and has 5¼ per cent. in back dividends outstanding.

The American Iron & Steel Mfg. Company, regular quarterly, 1¼ per cent. on common and preferred stocks.

The Sloss-Sheffield Steel & Iron Company, regular quarterly, 1¾ per cent. on the preferred stock, payable October 1.

The Union Twist Drill Company, regular quarterly, 1½ per cent. on the preferred stock, payable September 15.

The Remington Typewriter Company, regular quarterly, 1¾ per cent. on the first preferred and 2 per cent. on the second preferred stock, both payable October 1.

The American Brake Shoe & Foundry Company, regular quarterly, 1¾ per cent. on the common and 2 per cent. on the preferred stock, both payable September 30.

The General Fireproofing Company, regular quarterly, 1¾ per cent. each on the common and preferred stocks, both payable October 1.

The Pittsburgh Valve Foundry & Construction Company, regular quarterly, 1½ per cent. each on the common and preferred stocks, payable October 1.

The third instalment of 1¼ per cent. of the 5 per cent. dividend which was declared on the preferred stock of the Bethlehem Steel Corporation, January 19, 1914, will be payable October 1.

The Western Electric Company, regular quarterly, 2 per cent., payable September 30.

The Clawson-Fisher Steel & Tin Plate Company has been formed in Chicago to handle sales for the Massillon Rolling Mill Company, Massillon, Ohio; the McKeesport Tin Plate Company, McKeesport, Pa., and the N. & G. Taylor Company, Philadelphia, Pa. The business conducted by the new corporation will be altogether among the large manufacturing and jobbing trades in Illinois, Indiana, parts of Wisconsin, and in Michigan and Ohio. Both active members, Austin Clawson and Edwin G. Fisher, have been in the employ of the Follansbee Brothers Company for a number of years. Mr. Fisher is still with the Follansbee company, but will take up his new work October 1. He was at one time manager of the Columbus branch for the Follansbee Brothers Company, while Mr. Clawson was general sales manager for the same company. The new organization is located at suite 925, Continental & Commercial National Bank Building.

The Bridge Builders and Structural Society, 50 Church street, New York, states that at its monthly meeting, held in Philadelphia, September 11, it was shown from careful reports collected by its secretary that in the month of August 27½ per cent. of the entire capacity of the bridge and structural shops of the country was contracted for.

The Variety Iron & Steel Works Company, Cleveland, Ohio, has been given a contract by the Buffalo Union Furnace Company, Buffalo, N. Y., to rebuild its B stack and to erect ore and coke bins in connection with the furnace.

Weeks & Weeks, mechanical and consulting engineers, have arranged to manufacture and sell certain lines of special and automatic machinery. Since September 1 their offices have been located in the Tribune Building, 154 Nassau street, New York City.

The Indiana Steel & Wire Company, Muncie, Ind., has resumed operations after a shut-down of several weeks.

OBITUARY

CHARLES W. BAIRD, Detroit, Mich., died September 8, after an illness of two years, aged 51 years. He was secretary and treasurer of the Detroit Iron & Steel Company, a director of the Wakefield Iron Company and the Federal Motor Truck Company and was also connected with the Solvay Process Company. Born in Connecticut, he spent his early years in Indianapolis, locating in Detroit 27 years ago, where he established the firm of Baird & West, merchandise brokers. He leaves a widow. He was a member of the Detroit Club, Country Club, Old Club, Detroit Boat Club and Automobile Club.

JOSEPH L. SOMERS, last of the three brothers who built up the great factory in Brooklyn, N. Y., absorbed by the American Can Company in 1901, died September 12 at his summer home at Mendham, N. J., aged 70 years. Natives of Alexandria, Va., the brothers started the manufacture of brass novelties in Brooklyn soon after the civil war. Later they conceived the idea of decorating tin boxes and for a time manufactured their own tin plate.

OLIVER K. BROOKS, secretary and treasurer of the National Malleable Castings Company, Cleveland, Ohio, died September 14 of heart trouble, after a brief illness, aged 69 years. In 1881 he became associated with the Cleveland Malleable Castings Company, which later became a part of the National Company.

PAUL A. E. GUERBER, a prominent mechanical engineer and manager of sales of the Guerber Engineering Company, Bethlehem, Pa., died in Allentown, September 10, following an operation for appendicitis. He was 53 years old, born in Brooklyn, N. Y., and was educated abroad.

GLENN CHARLES LOTT, vice-president and general manager of the Struthers-Wells Company, steel plate construction, Warren, Pa., died September 10.

The Blair Mfg. Company, Newark, Ohio, is being reorganized. The new company, incorporated with a capital stock of $100,000, will be known as the Blair Motor Truck Company, and will devote its attention exclusively to the manufacture of motor trucks. R. W. Smith is president of the reorganized company; W. S. Weiant, vice-president; C. H. Spencer, secretary, and Charles A. Smith, treasurer and sales manager. The manufacture of farming machinery will be discontinued.

The Asbestos Protected Metal Company, Beaver Falls, Pa., announces the establishment of new selling agencies at Detroit, Mich., and New Orleans, La. James E. Walsh, Chamber of Commerce Building, is in charge at Detroit and Fritz Jahncke, 814 Howard avenue, at New Orleans. The company's line includes asbestos protected metal sheets for roofing and siding, Asbestosteel concrete roofs, Asbestosteel rustless lath, Aegisroll roofing, etc.

On August 25 two boats left the island of Naxos, Greece, for this country, one carrying 300 tons of emery ore and the other 950 tons, both bound for Philadelphia, and the ore is consigned to the Pittsburgh Emery Wheel Company, Pittsburgh, whose works are at Rochester, Pa. This company states that with the arrival of these cargoes it will have a sufficient supply of raw material to meet its needs up to July 1, 1915.

Corrigan, McKinney & Co., Cleveland, Ohio, have an inquiry out for an air compressor for their power plant and for 50 ingot cars and 50 charging box buggies for their new steel plant.

The Baltimore Belting Company, Baltimore, Md., has arranged with C. K. Turner & Son, Inc., 116 Broad street, to care for its export interests, which have been growing steadily.

The Foundrymen's Conventions in Chicago

(*Continued from page 669*)

very low shrinkage, approximately 0.1 in., is rather sluggish, requiring to be poured very hot, and is not sufficiently fluid for light castings. It is especially adapted to cylinders and has a Brinell hardness of 220. It also has very good wearing qualities. In explanation of the qualities of this iron with relation to its analysis, Mr. Bauer stated that an unusually high silicon, low phosphorus, high combined carbon and low total carbon with high sulphur make for strength.

In connection with the paper on standard specifications for cast-iron pipe for export use, presented by Dr. Richard Moldenke, Mr. Hopkins, of the United States Cast Iron Pipe & Foundry Company, called attention to an apparent discrepancy as regards the opinion of English manufacturers on the subject of cast-iron pipe. Mr. Hopkins stated that under date of June 19, 1914, the adoption of the proposed pipe specifications was opposed by the association of British pipe founders. He further called attention to a paragraph in section 1 which provides for a constant outside diameter, the variation in the thickness of the pipe wall to be taken up in the bore. Mr. Hopkins stated that in their present patterns the bore has been maintained constantly and varying thickness of the wall is provided for by varying the outside diameter. He asked for information and for a consideration of present practice in establishing new specifications.

At the banquet on Thursday evening approximately 300 members attended. The principal address was made by Dean Kirkland, of Vanderbilt University, who spoke on "Some By-Products of Commerce and Industry." Among all of the gatherings of the convention this banquet takes an important place by reason of the eloquence and inspiration of Dr. Kirkland's remarks.

CHANGES IN CONSTITUTION

The Friday morning session was held at the LaSalle Hotel and was less well attended than might be desired. Following a report from the auditing committee, the report of the committee on constitution was presented in substance as follows. It recommended that:

Any firm or corporation engaged in the production of castings of any kind, or any person so engaged as an employer, manager or superintendent, or as assistant to such, together with any others especially qualified, may be elected to active membership.

Any person who is engaged in foundry work, such as molding foremen, core foremen, pattern foremen, chipping foremen, chemists, etc., or any firm or corporation having a commercial interest in foundry operations though not engaged in the production of castings, or any officer or employee of such firm or corporation, may be elected to associate membership.

Election to active and associate membership shall be vested in the executive board, members of which should indicate by letter ballot addressed to the secretary their choice of applicants. Two negative ballots will reject an applicant.

Election to honorary membership shall be by a two-thirds vote of the members present at a regular meeting upon the recommendation of the executive board.

Associate members shall have all rights and privileges of active members except the right to receive gratis the bound volume of transactions. Associate members shall receive gratis the same matter that appears in the bound volume of transactions in pamphlet form.

The officers of this association shall consist of a president, ten [present number eight] vice-presidents, one of whom shall be named senior vice-president, and a secretary-treasurer; who shall with the past-presidents of this association form its executive board.

The entrance fee for active members shall be $5, which must be submitted with application. Dues for active members shall be $10 per annum. The entrance fee for associate members shall be $5 (effective May 1, 1915), which must accompany application. Dues for associate members shall be $5 per annum.

The amendments are suggested as necessary to provide for the possible expansion in membership of the American Foundrymen's Association foreshadowed by the attitude of the allied associations. The recommendations of the committee were accepted.

At the suggestion of the treasurer action was taken authorizing the preparing of a bond for the treasurer to be paid for out of the funds of the organization. Major Spear then offered a resolution thanking all who had assisted in the preparation and conduct of the meeting.

NEW COMMITTEE APPOINTMENTS

The need of a larger number of committees to represent the organization in the consideration of various matters which are subject to continuous investigation was pointed out by President Howell, who suggested the appointment of the following committees in addition to those already in existence: specifications for foundry scrap; costs; a committee to work in conjunction with the American Society for Testing Materials in connection with gray iron, steel and malleable iron; an enlargement of the committee on industrial education and the committee to care for the International features of the 1915 meeting. In accord with this suggestion motion was made by Mr. Bull, providing for appointments by the president, which were made as follows:

Papers 1915:

H. B. Swan, Cadillac Motor Car Company, Detroit; Secretary A. O. Backert; S. B. Chadsey, Massey-Harris Company, Ltd., Toronto; John Howe Hall, consulting engineer, New York; J. P. Pero, Jr., president, Franklin Park Foundry Company, Chicago; D. W. Sowers, Sowers Mfg. Company, Buffalo, N. Y., and O. J. Abell, *The Iron Age*, Chicago.

Steel Foundry Standards.

Dudley Shoemaker, chairman, American Steel Foundries, Indiana Harbor, Ind.; A. H. Janssen, Bettendorf Axle Company, Davenport, Ia.; Ralph W. West, vice-president, West Steel Casting Company, Cleveland; L. A. Way, superintendent, Duquesne Steel Casting Company, Coriopolis, Pa.; A. H. Thomas, general superintendent, Buckeye Steel Casting Company, Columbus, O., and A. F. Sterling Blackwood, Michigan Steel Casting Company, Detroit.

Specifications for Foundry Scrap.

S. D. Sleeth, chairman, Westinghouse Air Brake Company, Pittsburgh; Alexander Thomson, H. H. Caldwell & Son Company, Chicago; W. J. Keep, Michigan Stove Company, Detroit, and H. Cole Estep, Iron Trade Review, Cleveland.

Safety and Sanitation.

A. W. Gregg, chairman, Bucyrus Company, So. Milwaukee; T. D. West, Cleveland; F. H. Elam, manager casualty department, American Steel Foundries, Chicago; Arthur T. Morey, manager, safety and fellowship, Commonwealth Steel Company, Granite City, and M. W. Alexander, General Electric Company, West Lynn, Mass.

Costs.

Benjamin D. Fuller, superintendent, Westinghouse Electric & Mfg. Company, Cleveland; B. J. Walker, Erie Malleable Iron Company, Erie, Pa.; H. O. Lange, Ferguson & Lange, Chicago; E. G. Felthauser, Acme Steel & Malleable Iron Company, Buffalo, N. Y., and Harrington Emerson, Emerson Company, New York.

Committees to work in conjunction with Testing Society.

Gray Iron: J. J. Wilson, Detroit; W. P. Putnam, Detroit, and Dr. Richard Moldenke, Watchung, N. J.

Steel: R. A. Bull, Commonwealth Steel Company; W. C. Hamilton, American Steel Foundries, Chicago, and W. G. Nicholas, works manager, Edgar Allen Malleable Steel Company, Chicago Heights.

Malleable Iron: Enrique Touceda, chairman, Albany, N. Y.; A. H. Jameson, Malleable Iron & Fittings Company, Brantford, Conn., and F. E. Nulson, president, Missouri Malleable Iron Company, E. St. Louis, Mo.

Industrial Education.

Frank W. Leavitt, chairman, University of Chicago; Dean Connally, Carnegie Institute; Dean Schneider, special committee of education, New York City; Paul Kreutzpointner, Altoona, Pa.; C. E. Hoyt, Lewis Institute, Chicago, and E. A. Johnson, Wentworth Institute, Boston.

International Meeting 1915.

Dr. Richard Moldenke: Walter Wood, R. D. Wood & Co., Philadelphia, and Thos. W. Devlin, Thos. Devlin Mfg. Company, Philadelphia, Pa.

NEW OFFICERS

Mr. Howell, in calling for the nominating committee's report again expressed his appreciation of the co-operation given by his co-workers during the year and his gratification in the choice of officers for the ensuing year. The report of the committee, consisting of all the ex-presidents in attendance, was presented by Mr. Anthes and the officers were elected as follows:

President, R. A. Bull, Commonwealth Steel Company, Granite City, Ill.

Secretary-Treasurer, A. O. Backert, Penton Publishing Company, Cleveland.

Vice-Presidents: Henry A. Carpenter, General Fire Extinguisher Company, Providence, R. I.; Walter Wood, R. D. Wood & Co., Philadelphia; S. B. Chadsey, Massey-Harris Company, Ltd., Toronto; T. W. Sheriffs, Sheriffs Mfg. Company, Milwaukee; J. P. Pero, Missouri Malleable Iron Company, E. St. Louis; A. T. Drysdale, Sheffield Cast Iron Pipe & Fdy. Company, Sheffield; J. J. Wilson, Cadillac Motor Car Company, Detroit; A. H. Thomas, Buckeye Steel Casting Company, Columbus, Ohio; H. E. Field, Wheeling Molding & Foundry Company, Wheeling, W. Va., and B. D. Fuller, Westinghouse Electric & Mfg. Company, Cleveland.

The new president was conducted to the chair by ex-President Seaman.

Mr. Seaman, assuming the particular privilege that has been his for many years and in speaking of the personal honor accorded him, asked that the association make ex-President Howell an honorary member. This was seconded by John A. Penton, who at the same time took occasion to prophesy for the association a large and authoritative place in the technical societies of the country and to express the hope that the allied associations might find it advisable to merge their strength and purpose into the one body to the end that a unified effort might result in the greatest advancement. Major Spear then proposed Mr. Penton for honorary membership, which action was unanimously taken.

THE ASSOCIATED FOUNDRY FOREMEN

Mr. Fuller, Cleveland, then moved that the executive committee be empowered to act in the matter of taking into the American Foundrymen's Association the Associated Foundry Foremen's organization as a body, and he also moved that as a special evidence of its appreciation the unanimous thanks of the association be sent to Dr. Moldenke for the eminent and valuable service he has rendered. The meeting then adjourned.

The Associated Foundry Foremen were entertained at a banquet on Monday evening and on Wednesday held two sessions, at one of which an illustrated talk was presented on the subject "Geometry in the operation of the foundry."

Officers elected by this association for 1914-15 are:

President, Robert McDonald, Samuel Moore & Sons Corporation, Elizabeth, N. J.

Vice-President, J. A. Laucks, S. J. Cresswell Company, Philadelphia, Pa.

Secretary-treasurer, Robert B. Thomson, 78 Verplanck street, Buffalo, N. Y.

The American Institute of Metals

As has been customary for some years, the American Institute of Metals held its eighth annual meeting at the same time and place as that of the American Foundrymen's Association. Five separate sessions, three afternoon and two morning, gave an opportunity for the presentation of a large number of important and valuable papers. An account of some of these, with some of the points brought out in the discussions, is given in the following report:

At the first meeting, on the afternoon of Tuesday, G. K. Burgess of the Bureau of Standards, Washington, D. C., offered a paper on the "Progress in the Nomenclature of Alloys." In it he presented the report of the British Institute of Metals, which he stated was the most far-reaching event in this connection. The principle adopted in this report is that of denoting any alloy by the names, in English, of its component metals, placed in the order of increasing numerical importance from the point of view of chemical composition by weight. When two or more metals are present in nearly equal amounts they should be placed in alphabetical order. Where an alloy consists of more than three metals its systematic name shall not as a rule contain more than the names of three metals present in the largest proportion by weight, but the presence of additional metals or elements shall be denoted by the prefix "comp" or "complex." If, however, an alloy of this kind contains an intentionally added element which, although present in small quantity, gives the alloy a distinctive character, that element may be named first.

Mr. Burgess stated that in view of the simplicity of the principles advocated and for the sake of uniformity of usage, it would appear advisable for this institute to adopt the British suggestions.

DIE CASTINGS

In discussing the paper by Charles Pack, on "Modern Die Casting Practice," a portion of which will appear in a subsequent issue of *The Iron Age*, P. Mueller, H: Mueller Mfg. Company, Decatur, Ill., described the die casting of brass. There is no true die casting, but approximately 60 per cent. copper and 40 per cent. zinc metal is satisfactorily pressed, while hot enough to be plastic, into small parts. These are so expensive as to be commercial only in rare cases, as where raised letters are made, in which case slight defects in a sand casting ruin it, or in the case of gas cocks for extremely high pressures. N. K. B. Patch, Lumen Bearing Company, Buffalo, N. Y., said in the latter case the advantage was due to the greater density of the compressed material giving a perfectly solid metal.

A. B. Norton, Riverside Metal Refining Company, Connersville, Pa., in his paper on "Die Cast Aluminum" at the same session, described the process of manufacturing aluminum die castings as practiced by the Aluminum Castings Company. Comparative figures of the physical properties of sand and die-cast aluminum which he presented showed the superior tensile strength and ductility of the latter. The process also produces castings that are very accurate in design as well as resistant to heat. One of the newer adaptations of these castings is in the manufacture of pistons for automobile engines which are used successfully in nearly all of the French racing cars. The process in America is at present limited largely to pieces in which the coring can be designed so as to permit the use of metallic cores. Castings weighing about 30 lb. each are now being made in large numbers. The author was of the opinion that aluminum die castings will solve many manufacturing problems.

Much interest was shown in some very large, intricate and perfect die castings exhibited. Frank Shutz, Mueller Mfg. Company, said he had made aluminum castings for a valve to stand very high pressures by the use of ½ lb. of potassium nitrate to the pot, which gave a close-grained metal. Doubt was expressed whether the addition of such a strong oxidizing agent to aluminum was good practice.

HARDNESS OF NON-FERROUS ALLOYS

"Brinell Hardness Testing in Non-ferrous Alloys" was the subject at the second session on Wednesday afternoon of a paper by V. Skillman. After discussing the Brinell and the Alpha apparatus he pointed out that in making the Brinell test it is exceedingly important that what may be recognized as a standard set of conditions be followed. Much of the data so far published has referred to ferrous material. It has been recommended that a standard ball of 10 mm. diameter be used with loads of 3000 kg. for ferrous and 500 kg. for non-ferrous alloys. It is also advised that iron and steel samples be submitted to the pressure for 15 seconds and alloys for about 30 seconds. Much published data will be found in which one or more of the above conditions has been varied. The factor which has the greatest influence on the numeral obtained is the pressure applied.

In a table the author gives the hardness numerals obtained with different pressures on some non-ferrous alloys in which the results varied widely, illustrating the necessity of either following adopted standard methods of testing or of stating the conditions under which the test was made and especially the load applied. Besides the variables due to the manner of testing, there are also those introduced by the sample. It is evident that the hardness of a certain alloy cannot always be expressed by one definite Brinell standard.

In commenting on the paper N. K. B. Patch stated that for any one non-ferrous alloy, the hardness test will show after the relation for that alloy is known, but the same relation between hardness and tensile strength does not hold for different alloys. W. M. Corse, Lumin Bearing Company, Buffalo, N. Y., pointed out that while Brinell tests may be made on an ordinary testing machine, the larger the testing machine the longer the test takes —so that if many tests are to be made and only testing machines above 50,000 lb. capacity are available, a special hardness testing machine is desirable.

OXIDATION IN REMELTING OF COPPER

At the third session on Thursday morning, devoted to metallurgy and metallography, F. O. Clements, chief chemist, National Cash Register Company, Dayton, Ohio, presented a paper on "The Effect of Repeated Remelting on Copper." In this he gave the results of experimental heats of copper in which the temperature was elevated with detrimental effect. The machine recommended and used to test the metal was the Upton-Lewis toughness testing machine as modified by the National Cash Register Company, Dayton, Ohio. The efficacy of fluxes to deoxide the metal is also brought out in the paper, the beneficial results of the use of boron suboxide being shown.

H. G. Dorsey stated that the Upton-Lewis toughness testing machine gave inconsistent results until the spring resistance was replaced by the pendulum resistance, and until the machine was run at a variation of not over 0.1 per cent. from absolutely constant speed. With these changes it was very useful.

ELECTRIC MELTING PRACTICE

The afternoon meeting of Thursday, the fourth meeting, was devoted to melting practice, with special reference to electricity as the agent. Dr. Herbert G. Dorsey, Pittsburgh, Pa., in a paper on "Tests on Electric Furnaces for Brass Foundries," called attention to the fact that although no brass foundries are melting their product electrically at the present time on a commercial scale, yet it seems probable that within a few months several companies will be nearing the solution of this problem, little attention having been paid to electric furnaces for this purpose until the last two or three years.

Dr. Dorsey's paper is a discussion of the Helberger electric furnace made by the Allgemeine Elektricitats Gesellschaft of Germany—the only furnace advertised as claiming to melt brass successfully. The furnace was tried out in the foundry of the National Cash Register Company at Dayton, Ohio. Considered commercially, it was a failure, says Mr. Dorsey, showing many disadvantages and very few advantages.

In discussing the paper, F. Shutz pointed out that although the particular type of furnace tested was not a commercial success, it was as much of a one as the first open flame oil furnaces when they were introduced years ago. On that type it took many improvements and much experience to bring it into satisfactory working condition. He predicted that the same line of evolution would be followed with electric furnaces, and that it will be but a matter of a few years before electric brass melting is common.

Ernst M. Schmelz's paper on "Electric Furnace for Medium Temperature" had for its object the introduction of a furnace which is regarded as an evolution of the Stassano steel furnace, but adding such particular features as the lower melting temperature of the charge requires. He states that it has several obvious advantages over any ordinary melting furnace using oil or gas. The use of electricity, the only absolutely pure heating medium, prevents the introduction of any impurities like sulphur from the fuel, and oxidation is also minimized. The author states that the special features of this new furnace have already aroused the interest of the metal producing industries.

H. W. Gillett, of Ithaca, N. Y., in commenting on the paper pointed out that the single test cited on copper afforded no indication of what the furnace would do on alloys high in zinc, in regard to metal losses, stating that work on this type of furnace has not so far been encouraging in regard to metal losses. A possible field, however, is suggested by the statement by Mr. Addicks, that cathode copper easily takes up impurities enough in melting down in reverberatories to lower the conductivity appreciably. In the arc furnace it should be possible to melt without taking up any impurities.

H. M. St. John, of the testing department of the Commonwealth Edison Company, Chicago, Ill., in his paper on "Electric Brass Melting from the Central Station Viewpoint," presented data relative to the approximate power per ton required in melting brass, the furnace production and cost of power under various methods of operation in certain types of furnaces, as well as the approximate cost of melting per ton including power or fuel, crucible cost, maintenance and metal losses. His conclusion is inescapable that the electric furnace will eventually crowd the fuel-fired furnace out of the foundry and that in many cases it is ready to begin its task now.

G. H. Clamer, Ajax Metal Company, Philadel-

phia, Pa., pointed out that the average foundry cannot have its own power plant, and the success or failure of electric melting in such foundries must rest largely on the rates that the central station can give. Progressive central stations are realizing that the load is an attractive one, and are doing all in their power to hasten the advent of the electric brass furnace.

GAS AS A MELTING MEDIUM

Friday morning's session, the last of the convention, was also devoted to melting practice. E. B. Guenther, in his paper on "The Use of Producer Gas for Melting Yellow Brass," gave the results of tests conducted jointly by the Detroit Copper and Brass Rolling Mills Company, Detroit, Mich., and the Westinghouse Machine Company, East Pittsburgh, Pa., to obtain reliable data as to the economic value of producer gas for brass melting.

In the discussion of the paper, Mr. Guenther remarked that the design of the furnaces for yellow brass was not perfect, as coke furnaces had been remodeled into gas furnaces, hence the yellow brass furnaces were not wholly satisfactory from a commercial point of view. Producer gas furnaces at the Langsenkamp-Wheeler Works were giving satisfaction. This was corroborated by Mr. Langsenkamp, who said there was no trouble and that the fuel cost was 8c. per 100 lb. of red brass melted. Cheap coal can be satisfactorily used, but as they have to haul several blocks from the railroad, mine run Pocahontas proves cheaper than lower grade coal.

At the same meeting Fred L. Wolf and Robert B. Burr, of the Ohio Brass Company, Mansfield, Ohio, under the title of "Tests of Natural Gas Fired, Brass Melting Furnaces Under Factory Operating Conditions," summarized the results obtained from a series of tests made under shop operating conditions at the plant of the company with which they are connected. Various types of furnaces were tried and the data presented are extended in their scope.

In the discussion of the paper, Mr. Wolf stated that in furnaces equipped with the home-made gas pipe burner, placed tangentially so as to give a whirling flame, No. 60 crucibles have recently shown lives of 93, 102, 104 and 117 heats, although the average life, on the basis of 2 years' records was 50.8. Mr. Frank, of the Damascus Bronze Company, Allegheny, Pa., said that in natural gas furnaces with a burner consisting of a number of spirally placed mixing tubes, the life of No. 200 and No. 250 pots was only about 10 heats, though by experimenting with different fireclay-graphite mixtures as crucible material, this had been increased, the life reaching 15 heats in winter, though not so high in summer. Mr. Wolf said that when gas samples, taken by a quartz sampling tube at the surface of the metal in the pot showed no oxygen, and a slight amount of carbon monoxide, about 1 per cent., the fuel efficiency was still good, and the metal retained a clean mirror surface during the heat, without the use of charcoal or other cover. To prevent oxidation of the metal, all the oxygen in the air supplied must be consumed. The main difficulty in doing this is in attaining perfect regularity of air and gas pressure. An automatic regulator is being worked out.

SEASON CRACKING OF BRASS

E. Johnson, in a paper not scheduled, on season cracking in brass, described experiments aimed to find the explanation of the large number of failures in wrought manganese bronze fittings for the Catskill aqueduct. The trouble was very serious, but was not found in cast material. Fully definite conclusions were not reached, but from tests on the corrosion of manganese bronze, Muntz metal and naval brass when under strain, by various reagents, it appeared that corrosion, unless absolutely uniform over the sample, of such alloys under strain, was the probable cause. Annealing did not entirely solve the problem, as corrosion when under external stress, i.e., in actual use, caused cracking, similar to the season cracking due to internal strains set up during cold working. Hence annealed samples failed as well as unannealed. Cast samples also failed under combined stress and corrosion in tests, but had not failed on the aqueduct. Probably the castings are not used where the high strength of cold worked material is required. Mr. Johnson concluded that in the use of such alloys, engineers should figure safe loads on the basis of the yield point—not of the ultimate strength, as the true yield point is only about half that found by rapid commercial methods of testing, and is not marked. A far greater factor of safety should be allowed than has been in the past. Ductility does not help, as these alloys are not truly ductile under service conditions, though they are by rapid loading in the testing machine.

W. H. Bassett and G. H. Clamer discussed the bearing of Rosenhain's theory of an intergranular amorphous cement between the crystals of metals and alloys in its relation to the problem of season cracking.

REPORT OF THE OFFICIAL CHEMISTS

The usual report of the official chemists of the institute, Arthur D. Little, Inc., Boston, Mass., presented the usual résumé of the year's progress. The most significant occurrence of the past year, from many points of view, says the report, has been the co-operation of this institute with the American Chemical Society, the Mining Engineers, the American Society for Testing Materials, and the Bureau of Standards. This joint committee embodies the long and increasingly felt want for a systematic and thorough standardization of the many factors in the industry. It has become evident that thorough specifications for finished product frequently necessitated a knowledge extending back of the brass founder to the mine; that the metallurgists themselves could profit by knowledge of foundry needs and limitations. Such advance and interchange of ideas is achieved most readily through a medium such as this committee offers. The amount of research work essential to the proper development of the non-ferrous industry is very great in view of the comparatively few combinations of metals in commercial use as compared with the possible alloys which are as yet unknown.

NEW OFFICERS

At the Friday morning session officers were elected as follows:

President, G. H. Clamer, Ajax Metal Company, Philadelphia, who was re-elected.

Vice Presidents: R. B. Wallace, National Cash Register Company, Dayton; Robert Job, Milton Hersey Company, Montreal; W. G. Harris, Canada Metals Company; Jesse L. Jones, Westinghouse Electric & Mfg. Company, Pittsburgh; George C. Stone, New Jersey Zinc Company; W. H. Bassett, American Brass Company; Fred Moerl, Pullman Company; J. G. Kasjens, Brass Foundry Company, Peoria; H. W. Gillett, Ithaca; E. B. Horne, Packard Motor Car Company, Detroit.

Secretary-Treasurer, W. M. Corse, Titanium Alloys Mfg. Company, Niagara Falls, N. Y., who was re-elected.

The fortnightly bulletin of the American Railway Association shows that on September 1 there was a net surplus of freight cars on the lines of the United States and Canada of 163,326, which represents a decrease of 8819 cars in the last half of August.

PERSONAL

Judge E. H. Gary arrived in New York September 12. As chairman of the committee organized to facilitate the return of Americans from France, he remained at Paris for some time after it had become a military camp, leaving for Havre September 1. In a New York newspaper interview he gave a vivid account of the experiences in Paris throughout August.

J. A. Hatfield, president of the American Bridge Company of New York, returned from Europe last week.

John R. Metcalf has been made treasurer of the Erie Malleable Iron Company, Erie, Pa.

R. Poliakoff, assistant professor of mechanical technology, Imperial Technical Institute, Moscow, Russia, is now at The Girard, Forty-fourth street, near Broadway, New York City. His object in visiting this country is to become acquainted with our working methods. He would be pleased to receive catalogues, circulars and other literature relating to his specialty.

H. J. Maloy has been appointed assistant purchasing agent of the Aluminum Company of America, Pittsburgh, succeeding David Williams, who resigned to accept a position with the Library Bureau, New York City.

William H. Donner, president of the Cambria Steel Company, and some time ago made chairman of the board of directors of the Pennsylvania Steel Company, has decided to remove his residence from Moorewood Heights, Pittsburgh, to Bryn Mawr, a short distance from Philadelphia, where he will be nearer to the base of active operations of the Pennsylvania Steel Company and will also be in close touch with matters in the offices of the Cambria Steel Company at Philadelphia.

G. W. Blen, formerly in the Pittsburgh office of the Bourne-Fuller Company of Cleveland, has resigned to accept a position in the New York office of A. M. Byers & Co., Pittsburgh, makers of wrought-iron pipe.

J. D. Huddell, formerly in the New York office of the Pittsburgh Coal Company, has gone to South America to gather information as to the chances for developing export coal business for the company.

E. C. Sickles has been engaged as works engineer for the Hyatt Roller Bearing Company, Newark, N. J.

J. W. H. Hamilton, of Hamilton & Hansell and the American Grondal Company, New York, recently returned to this country after a year's absence in Europe. He was instrumental in installing Greenawalt iron-ore sintering plants in Italy, Sweden and Norway.

Alfred Baruth, formerly with James F. Blanchard and John W. Rapp and for the last three years vice-president of the Reliance Fireproof Door Company, Greenpoint, L. I., is now president of the recently incorporated Consolidated Metal Fireproofing Company, 414-420 East 125th street, New York.

Robert S. Blair and Albert F. Nathan have entered into partnership as patent lawyers at 55 Liberty street, New York City. Delos G. Haynes will be associated with them. All three are graduates of the Massachusetts Institute of Technology.

J. S. Harris, who for some time has been assistant secretary of the National One Cent Letter Postage Association, with headquarters in Cleveland, Ohio, has purchased an interest in the George W. Korn Razor Mfg. Company, Little Valley, N. Y., and has become vice-president of that company. He was connected with the McIntosh Hardware Corporation, Cleveland, Ohio, for 17 years and was its sales manager seven years.

J. Rogers Flannery, president of the Flannery Bolt Company and also of the American Vanadium Company, Pittsburgh, has been made president of the commission appointed last week by various bodies in Pittsburgh to seek foreign trade for Pittsburgh manufacturers. It is probable an appropriation will be made at the next meeting of the Pittsburgh City Council to carry on the work.

Robert S. Alter, secretary of the American Tool Works Company, Cincinnati, Ohio, who is in London, expects to sail for home on the Mauretania, September 19. He had intended to make an extensive business trip through Europe, but was forced to abandon it on account of the war.

W. F. Robertson, president Robertson Steel & Iron Company, Cincinnati, Ohio, who has been in the Orient since last June, is expected home next week.

Charles M. Gearing has been made superintendent of the Elmwood branch of the New Departure Mfg. Company, Bristol, Conn. He has been connected with the company for a long time, having been advanced to his present position from foreman of the ball-bearing room at the main plant.

T. I. Crane, Pilling & Crane, Philadelphia, Pa., has returned to his office after a vacation trip abroad. He left France as mobilization was beginning in that country.

Frank A. Moeschl, general manager of sales, Newport Rolling Mill Company, Newport, Ky., is absent on a vacation trip which will take in points of interest on the Atlantic seaboard.

Working for Steam Boiler Specifications

As this issue goes to press the committee of the American Society of Mechanical Engineers which is attempting the herculean task of formulating a nationally accepted set of boiler specifications looking, among other things, to uniformity among boiler inspection laws and to requirements of construction calculated to safeguard human life and property, is holding conferences in New York City with manufacturers of materials which go into boilers. On Tuesday were held hearings, in both morning and afternoon, and different interests met on Tuesday night to prepare statements for the benefit of the committee. Wednesday is being spent in frank conferences. At this writing the atmosphere is calm but on Tuesday it was fully charged with protests from commercial and engineering bodies. There is thorough unanimity on the part of all concerned to assist the committee, which is acknowledged to be engaged in an epoch-marking contribution to industry and society.

The second annual welfare and efficiency conference is to be held at Harrisburg, Pa., under the auspices of the State Department of Labor and Industry and the Engineer's Society of Pennsylvania November 17, 18 and 19. It will be divided into sectional meetings in the afternoons. The topics announced are industrial safety, fire prevention and industrial hygiene. An exhibit is to be held.

The Philadelphia division of the Veterans' Association of the Pennsylvania Railroad on the occasion of their tenth annual banquet, held September 12, were the guests of the Lukens Iron & Steel Company at Coatesville, Pa. Several high officials of the railroad were among those present.

The Backer Folding Table Company, Pittsburgh, which will manufacture furniture and patented inventions, has been incorporated in West Virginia with $25,000 capital stock by Charles H. Fritch, Arthur J. Backer, Frederick C. Hanford, and others, of Pittsburgh.

The Agnew Electric Welder Company, Detroit, Mich., is now prepared to furnish a complete line of electric welding machines, making 10 machines—six spot welders and four butt welders—with varying capacities. The office is located at 47 Campau Building.

The Champion Rivet Company, Cleveland, announces the appointment of the Cincinnati Iron & Steel Company, Cincinnati, as its exclusive agent in the Central and Southern States.

A new foundry is being built at Grafton, W. Va., by O. A. Hefner and others.

Conference with South American Diplomats

As the War Goes on Further Plans Are Developed for Increased Trade—Activity in Various Parts of "The Iron Age's" Field

The past week has been marked by active efforts in various cities to organize for the larger trade with South America which manufacturers of the United States are confidently expecting. The Department of Commerce at Washington has detailed one of its agents who is soon to set out for South America to investigate particularly the machinery trade. The reports below include an interesting interview with the honorary secretary of the American Business Men's Club in London, who is now in New York arranging for further representation of American houses in London. Reference is made also to the visit to this country of Percy Donald, representing the British building trades, who has already placed a number of orders for builders' hardware in this country.

The Week's Foreign Trade Developments in Many Directions

Harry N. Douthitt, commercial agent of the Department of Commerce, is making his headquarters at the New York office of the Bureau of Foreign and Domestic Commerce in the Custom House, preparatory to an investigation in South America of the opportunities for extending American trade in machinery. Mr. Douthitt spent five years in Brazil. He is particularly impressed with the possibilities in South America of American-made products in the following lines: Electrical and railroad materials, farming implements and machinery, gasoline engines, automobiles, coal, cement, cotton goods, woolens, shoes, hats, hosiery, millinery, saddles, tents and canned goods. The agent will confer with merchants and manufacturers during the fortnight he is in New York regarding matters connected with the export of machinery to South America. B. Joachim, a special representative of the Department of Commerce, who sails Thursday for South America to make a general investigation of trade opportunities, said that in the three weeks he has been at the New York branch office more than 400 bankers, manufacturers and exporters have called to discuss the trade situation developed by the European war.

The manufacture of carbolic acid on a large scale as the first step toward relieving the shortage brought about by the European war is to be undertaken in Philadelphia. Plans to that end are being matured by the Barrett Mfg. Company, Frankford.

Business with the Wilson Dress Hook Company, Cleveland, has been materially increased because of the shutting off of importations from Germany. Large importations of snap fasteners for women's garments have been made from Germany, which has supplied nearly all this line of products used in the United States. The shutting off of this supply has stimulated the demand for dress hooks as a substitute. The Wilson Company will probably install additional machinery equipment in the line of presses.

President Ramon Barros Luce, of Chile, is naming 50 prominent business men of that country to study manufacturing and business conditions in the United States. They will spend April, 1915, in St. Louis, May in Chicago and June in Boston. The Business Men's League of St. Louis is making arrangements for the visiting party in that city. Seven representatives of the St. Louis League who made a tour of South America early this year will be directly in charge of the programme.

W. R. Ostrander & Co., New York, manufacturers of electrical supplies, have received a number of inquiries recently from South American countries which heretofore have been supplied from Germany. In the past week B. B. Pujat, head of an electrical company in India, called on the above New York house, his trip to New York being to arrange for carrying American electrical supplies. His company has done a business of $2,000,000 a year and has made its purchases heretofore chiefly in Germany and England.

Glass plants in Indiana whose operation has been interfered with quite considerably in recent years by foreign competition, particularly Belgian and to some extent German, will profit by the cutting off of foreign sources of supply. Some plants that thrived in the natural gas era and that later were shut down are now being rehabilitated.

Charles A. Plamondon, president A. Plamondon Mfg. Company, Chicago, manufacturer of transmission machinery, has sailed from New York to close with an English company for the equipment of a new plant the latter is building at Trafford Park, Manchester.

Charles M. Pepper, for seven years in charge of the State Department's Bureau of Trade Relations at Washington, and whose valuable South American letters in these columns in recent months will be recalled by our readers, will be one of the speakers on the South American special of the Lehigh Valley Railroad which will go out next week to acquaint manufacturers along that line with South American opportunities.

To further the movement among Philadelphia merchants and manufacturers for the extension of their trade in South America a committee of representative business men has been appointed which will work in co-operation with the Commercial Museum of that city. Among the members of this committee are the following: Thomas Devlin, Thomas Devlin Mfg. Company; W. P. Barba, Midvale Steel Company; J. W. Rawle, J. G. Brill Car Company; Alba B. Johnson, Baldwin Locomotive Company; Charles Piez, Link Belt Company; David Reeves, Phoenix Iron Company; Robert Radford, Standard Steel Works; C. W. Asbury, Enterprise Mfg. Company; Walter Wood, R. D. Wood & Co.; John D. Street, Eddystone Mfg. Company.

Conference with South American Diplomats to Further Our Trade

WASHINGTON, D. C., September 15, 1914.—The Department of Commerce and the Department of State have been co-operating in an endeavor to promote the trade interests of the United States in Latin America. The most important result was a special conference of the diplomats of the South American nations with representatives of these Departments and with banking and business men held in Washington September 10.

The representatives of the South American nations laid particular stress upon the financial needs of their countries, and there is growing evidence that the greatest factor in the possibilities of American control of these markets lies in our willingness to take the place of Europe in financing the trade of these nations. Don Ignacio Calderon, the Bolivian minister, told the conference that better shipping facilities, lower freight rates, credit extension, "mutual confidence and good will" between the merchants of North and South America were the foremost needs of this trade development. Frederico Alfonso Pezet, the Peruvian minister, also emphasized the importance of general extension of credits to South American buyers. Francisco Escobar, consul general of Colombia, declared that a strong American bank should be established in Bogota with branches in the principal Colombian cities, and that American "missionaries of commerce" should be

sent there to overcome the existing antipathy for American goods. He also said:

The main revenue of South American nations is derived from taxing foreign trade, principally imports, and this has been reduced so suddenly that the custom houses are hardly taking in enough to pay the running expenses of government. Some countries are suffering more than others, but all are suffering. We need an immediate market for our exports and some one to sell us the things we can no longer get from Europe. It is the United States' great opportunity. That situation applies to all South America, which at the time the war broke out was doing more than 80 per cent of its foreign trade with Europe. The only exception was Colombia.

We must have the goods we need and not the goods the American manufacturer thinks we ought to have.

Secretary Redfield, of the Department of Commerce, assured the diplomats that American manufacturers and bankers would extend every possible co-operation. He said that he believed the chief needs to develop the commerce between the two continents consisted of a system of direct exchange, ready means of transportation, and a thorough understanding between the people of North and South America. In all of these he asked for the co-operation of the governments of South America.

British Building Trades Buy in the United States

Percy G. Donald, a director of Rownson, Drew & Clydesdale, Ltd., London, who came to New York after a visit to Canada in behalf of a syndicate of wholesale builders' hardware merchants of England, has conferred with a number of American manufacturers in the past week. He made his headquarters at the offices of the National Association of Manufacturers, 30 Church street. The products in which Mr. Donald and his associates are principally interested were mentioned in *The Iron Age* last week, these including nails, tubes and cast iron pipe. He states that he will be glad to receive at his London address, 225 Upper Thames street, London, E. C., letters from any manufacturers who want to know what their opportunities may be in England and in the export market reached through London. Mr. Donald said, as others have, that there seemed to be less scare and apprehension in London than in New York as a result of the war. In England many trades have organized to keep credits and business generally as nearly as possible on the same basis as before the war, the building trade having led in this respect. During his stay here and in Canada Mr. Donald has taken on direct representation of some firms, has placed some considerable orders, and has looked carefully into the question what this country and Canada can supply. Referring to the lack of materials in England which have heretofore been imported from Continental Europe, he said that England could make up some of the void, but not all. As for the ultimate resumption of German trade in England, he said that could not be accomplished for some years, as German exports have been developed under the bounty system and that after the war Germany will not have money wherewith to pay bounties, while her railroads will need much rebuilding for which they will have to buy material from foreign countries. All of the German facilities for production, he believes, would be needed at home for some time after the end of the war.

Russian Contract for Coal and Ore Handling Machinery

The Russo-Asiatic Corporation, London, England, has placed a contract with Arthur G. McKee, consulting and contracting engineer, Rockefeller Building, Cleveland, Ohio, for designing and constructing three large terminal coal and ore handling plants to be located along the Irtish River in Asiatic Russia. The designing of this work will begin immediately, but the fabrication and construction work will not be started until the termination of the European war. The contract was taken by D. D. Herr, sales manager for Mr. McKee, who has just returned from London. Mr. Herr was on his way to Europe when the war broke out and intended to visit the south of Russia, but was unable to do so. The three terminals and their handling capacities will be as follows: Ust Kamenogorsk terminal, to have a capacity of 100,000 to 150,000 tons of zinc and lead concentrates to be handled from 15-ton railroad trucks into 250-ton barges. The concentrates will be delivered to the terminal along the Irtish River from mines in the interior. The Ekibastous terminal will have a maximum capacity of 500,000 tons of coal to be loaded during six months of the year from 15-ton railroad trucks into barges. The Omsk terminal will have an unloading capacity of about 200,000 tons of coal in six months.

German Machinery Trade After the War

The manager of a German export house with an office in New York, referring to a statement in *The Iron Age* of September 10, to the effect that there was some apprehension among German exporters that the war might make necessary a recasting of the selling arrangements which American manufacturers now have abroad, said:

"There was not a good feeling between the countries now at war prior to the conflict, yet in spite of this the German export houses in those countries did a very good business. Mere feeling has not much to do with business. It is a question of dollars and cents. I know from my own experience that if the right man has the right machine to sell he will do the business no matter what his nationality or where the machine was made. The important consideration is, what country can supply the demanded products at prices which make their purchase advantageous. There is absolutely no reason for believing that at the close of the war Germany will not quickly resume the industrial position she occupied before the war. One thought seems to be overlooked and that is that Germany has been one of the best customers of England and other countries. If they say they will not buy from Germans, why can't the latter say they will not buy from the countries that boycott them? Then where would international commerce be?"

The manager further stated that he believed that the war would have the effect of clearing the atmosphere in Europe and that after it a better understanding will prevail than has heretofore been the case.

German Steel Industry and the War

From various German newspapers the London Ironmonger has abstracted the following items dealing with the state of the German steel trade up to August 22:

On August 9 the Steel Works Union cancelled all its contracts for sections for which no specifications had been received, on the ground of the war clause in the contracts. The Union reserves for itself the right to lay down fresh dates for delivery at revised prices. The association of girder merchants has passed a resolution declining to recognize the Steel Works Union's cancellation of unspecified contracts for sections. It maintains that the war clause only allows the Union to make a proportionate reduction in the unspecified portion of running contracts, and not to cancel them. The Union has decided to charge increased rates only for new contracts the execution of which is rendered more costly by increased expenses in procuring the raw material.

On the outbreak of war the Niederrheinische Steel Works at Duisburg were compelled to shut down because the supply of raw material was cut off owing to the mobilization of the railroads. Fresh supplies of coal and coke, however, were expected at the end of the third week in August, and it was hoped then to resume work on a restricted scale. The Annen steel works in Westphalia were still able, in the middle of August, to keep a limited number of men going on German navy contracts. Thyssen's steel works at Hagendingen, Alsace, in common with all other steel works in Alsace-Lorraine, are completely idle owing, it is said, to want of fuel. All the blast furnaces at the Aumetz-Friede works in Lorraine are blown out. Nearly two-thirds of the men employed at the Westfälische Stahlwerke in Bochum have been called to the front, and on August 18 the works were idle, except for two open-hearth furnaces. The rolling-mills were working single shifts. All other steel works and mines in the district were

paralyzed in the middle of the month for want of labor and fuel. Most of the blast furnaces in the Siegen district have been damped down, but some of the steel and rolling mills are still working after a fashion. The Geisweide Ironworks are shut down; the Charlotten works were still keeping one blast furnace going on August 18, but their tin-plate mills were idle. The Rheinische Stahlwerke at Duisburg and Meidereich, having plenty of available funds, was able to find work for all its remaining hands, and intends to carry on business indefinitely, besides assisting the families of its men who are at the front. The demand for Siegerland iron ore has increased owing to the stoppage of foreign ore supplies, but the output of all the mines has been restricted, and no roasting is being done for want of coke.

A London American on This Country's Export Opportunities

Robert N. Fairbanks, honorary secretary of the American Business Men's Club in London, who has traveled extensively in the Far East, the British colonies, Spanish America and Europe, and who recently came to New York to make export connections with American manufacturers, says in a statement for *The Iron Age* that British export business does not seem to have suffered nearly so much as the American. Naturally, some cancellations have been received in London, but orders are coming along in good volume and consequently there is less complaint as to the effect of the war on export trade in that city than in New York. At the same time the British Government is actively taking part in an organized effort not only to hold present trade, but to secure for British manufacturers as much as possible of the trade with British colonies and neutral countries which formerly was in the hands of the German people. A recent government communication issued from Downing street, said in part:

> The Secretary of State for the Colonies . . . telegraphed on the 15th inst. (August) to some of the more important colonies . . . to remind them that it is of utmost importance to have full information up to date respecting the principal imports into each colony from Germany and Austria and as to the products of each colony hitherto exported to those countries. . . .
>
> The Secretary of State has it in mind that action on the above lines will not only be an immediate benefit as regards employment in the United Kingdom, but should also lead to the permanent advantage of British trade in general. . . . As regards neutral foreign countries the Secretary of State for Foreign Affairs has undertaken to send a similar request to his Majesty's consuls in all places where such an inquiry is likely to have a useful result.

The British (Government) Board of Trade and other commercial and industrial bodies are moving energetically and promptly in the same direction.

Mr. Fairbanks said: "In my opinion America's opportunity at the present time is three-fold: First, we can get a part of the great export trade which Germany has enjoyed; second, we can manufacture a good part of what has heretofore been imported here from Germany, and third, we should have our share in making up the enormous waste of goods and supplies of every description now going on in Europe. Armies consume everything under the sun. The wastage in automobiles alone incidental to the war is prodigious. As to the second proposition, if we make even a reasonable part of what Germany has been supplying to us it will be an enormous gain. It seems to me that American manufacturers must be equal to a great deal of this and that if necessary we must import German experts to help us.

"It will not do, however, to wait until the end of the war, because England is taking measures to capture Germany's trade, and after the war is over Germany will be after it herself. I do not mean that American manufacturers should start an ill-considered campaign, without a proper basis of facts, but that they should not delay in informing themselves thoroughly and in laying plans, so that the moment they have proper financial facilities abroad, they can take advantage of the demand which they find to exist. The man who waits until somebody else starts things always gets left,

"I consider the question of shipping facilities as secondary to that of getting the orders and financing the sales. If orders come here, there seems little question that ships will be found to meet the demand. In this connection I want to say that the move of the National City Bank is splendid. It is exactly what is required. But the usefulness of a bank of that kind depends on the merchants and manufacturers. They must make use of its facilities. These branch banks will assist in determining to whom credit may be safely given, for credit must be provided. A man who has been buying on a six, nine or twelve months' basis is not all of a sudden going to pay cash against bills of lading unless he both has the cash and finds the goods better and cheaper.

"Manufacturers must make up their minds not to wait at home for foreign business; they must go after it. And the first step should be to send out men of sufficient caliber, who not only know their own products but who can determine to whom credits can be safely given. Investigation at first is a requisite, as indicated by the English example, and it may be that manufacturers can club together for this purpose. I believe that men sent out for this purpose should not be expected to devote themselves primarily to selling, although, of course, they need not let any opportunities slip. If a manufacturer or group of manufacturers can afford to spend $75,000 or $100,000 in a campaign for foreign trade they certainly can afford to spend $10,000 or $15,000 now in sending a proper representative abroad for purposes of investigation."

Referring to conditions in foreign countries, Mr. Fairbanks said: "South America has been passing through bad times, particularly Brazil and Argentina. Brazil has spent too much money and every one there feels poor. Argentina has had a land boom which collapsed. It seems to me, however, that the business of these South American countries, considering their enormous resources in the way of food supplies, will be greatly stimulated by present world conditions. Chile, of course, has been hard hit by diminution of her nitrate trade, some of the countries now at war having been her best customers, and this trade must be rearranged. The rubber trade has suffered by interruption of shipments, but I believe that as soon as exports of this commodity improve Brazil will feel better. As for manufacturing in South America, the best opportunities are in Argentina.

"It is a mistake, however, for intending exporters to think only of South America. They should consider also Australia, New Zealand, South Africa, the Dutch Indies, and the Far East, all of which have taken a lot of goods from Germany. All of East Africa moreover is probably going to be British, judging from the present war outlook, and this territory has been largely supplied with German materials carried in German ships.

"Much as England seeks foreign trade, she does not bring pressure to bear on her colonies to exclude the goods of other nations, but on the whole has been extremely generous in this respect and probably will continue so. Australia and New Zealand are particularly friendly toward America because the people there want a 'white man's Pacific.' Throughout the world there has never been a time when America's opportunities for export have been so great as now."

An Export Club at Cleveland — European Machinery Trade

To help in the building up of foreign trade an export club of manufacturers of Cleveland, Ohio, and vicinity was organized September 11. The meeting for organization was arranged by E. A. Ashburner, foreign sales manager of the American Multigraph Company, and Mr. Ashburner was chosen as permanent chairman. There were present representatives of about 80 concerns, all of which are interested in extending their foreign trade. Several men who have had long experience in developing this business, some of whom have traveled extensively in South America, addressed the meeting. The trend of the remarks was that American manufacturers will have a long and hard fight before them to capture the foreign markets. Reference was made to the fact that a great deal of bombastic matter

is appearing in the newspapers telling of the foreign fields that are open for American manufacturers, this matter being furnished largely by men who have had no experience with the foreign trade and who know practically nothing about it.

Among the speakers were W. B. Campbell of the Perkins-Campbell Company, Cincinnati, and former president of the American Manufacturers' Export Association; F. A. Scott, secretary of the Warner & Swasey Company, Cleveland; Hugh M. Kahler, Proctor & Collier Company, New York; W. L. Hagland, Jr., Burroughs Adding Machine Company, and F. K. Rhines, foreign sales manager of the General Fireproofing Company, Youngstown, Ohio. Mr. Scott represented the machine tool industry, and his remarks referred particularly to that trade. He outlined the existing conditions in Europe and the effect the war has had in cutting off business from all European countries except Scandinavia and England, but he expressed the opinion that outside of Austria and Germany, the war would not completely stop European importation of machinery, and in some lines it would be stimulated. He also intimated that the recovery which the European nations would make after the war ended would probably be surprisingly rapid, and he cited the recovery of France after the Franco-Prussian war of 1870 as an example. He particularly emphasized the value to Americans of the opportunity for trade in Russia, calling attention to the vast resources of that country, and to the wave of development which has extended over European Russia during the past two years. Referring to South America, he urged care and thorough preparation in approaching that market and emphasized a likelihood of very small and slow returns for any efforts made at this time. Patience and willingness to wait for returns would be particularly needed by those Americans who expect to build up business in Latin-American countries.

The export club organized at the meeting will take up the various problems from a practical standpoint and will hold meetings probably every two weeks to discuss these problems. The aim will be co-operative and collective work in efforts to extend the trade of the members into foreign countries.

Pittsburgh and Nearby Districts

The Ward Equipment Company, Pittsburgh, has been appointed agent for the Chain Belt Company, Milwaukee, Wis., and will handle its elevators and conveying machinery in the Pittsburgh district.

The boilers of the Dunbar Furnace Company, Dunbar, Pa., now controlled by the American Manganese Mfg. Company, Philadelphia, are being overhauled by the Connellsville Iron Works, Connellsville, Pa. It is now planned to put one of the Dunbar stacks in blast late this month or early in October on basic iron, but after running on such iron for two or three weeks it will be turned on ferromanganese, domestic ores to be used.

The Interstate Commerce Commission has entered an order suspending from September 15 until January 15 the operation of the tariff increasing freight rates on furnace slag, ashes and other refuse from Pittsburgh and other Pennsylvania points and from points in Ohio and West Virginia. The commission, upon complaint without a formal pleading, will enter upon a hearing in regard to new rates and regulations. The blast-furnace and steel interests protested against the proposed rates and urged that a hearing be granted.

The Edgar M. Moore Company, Farmers Bank Building, Pittsburgh, has made a contract with the Duquesne Light Company, also of that city, whereby it will dispose of all the latter's displaced equipment. The contract is expected to amount to between $100,000 and $150,000 worth of used apparatus each year. The Edgar M. Moore Company maintains a large warehouse for the stocking of machinery of various kinds on the North Side, Pittsburgh.

H. N. Scofield, Oliver Building, Pittsburgh, representative of the American Engineering Company, Philadelphia, has taken a contract for 24 Taylor stokers to operate Babcock & Wilcox boilers in the National works of the National Tube Company at McKeesport, Pa.

The Petroleum Iron Works Company, Sharon, Pa., steel plate construction, has increased its capital stock from $500,000 to $1,000,000, the increase being given as a stock dividend to stockholders under date of September 1. The company recently finished an addition to its power house, 50 x 90 ft., in which some new equipment has been installed, and is now making an addition, 50 x 108 ft., to its stock supply depot. Its plant is operating steadily, night and day, with considerable orders ahead.

The regular bi-monthly settlement of the wage scales for puddling and finishing mills was made in Youngstown, Ohio, on Monday, September 14. It was found that the average selling price of common iron bars shipped out in July and August was 1.09c., which puts the price of puddling for September and October at $5.60 per ton, a reduction of 10c. per ton over the rate paid in July and August. The reduction in finishing mills is about 2 per cent.

The citizens of Kittanning, Pa., have voted $112,000 of bonds for the construction of a municipal waterworks.

The United States Non-Condensing Boiler Company, Erie, Pa., has filed notice of an increase in its capital stock from $750,000 to $1,000,000.

The plant of the Universal Mfg. Company, Martinsburg, W. Va., which repairs and rebuilds automobiles, has been destroyed by fire with a loss of $8000.

The James Lappan Mfg. Company, Pittsburgh, manufacturer of boilers, tanks and plate work, has booked some fairly large orders for delivery at Leamington, Canada; Hilton, N. Y.; Lima and Bowling Green, Ohio; Wheeling, W. Va., and Lafayette, Ind. It is also doing considerable work in the new power plant of the Duquesne Light Company, now being erected at Bruno's Island, Pittsburgh.

The puddling department of the A. M. Byers Company, Girard, Ohio, containing 88 puddling furnaces, and the skelp mills are closed this week, but may possibly resume in part next week if accumulation of orders justifies.

The Standard Bridge Tool Company, Bessemer Building, Pittsburgh, has received an order from the Pressed Steel Car Company, McKees Rocks, Pa., for a Thomas spacing table, with multiple punch, for punching plates and angles.

Mackintosh, Hemphill & Co., Pittsburgh, builder of heavy engines and rolling-mill and steel-works equipment, is making some additions to its machine shop. It is installing five large motor-driven planers.

The Stephens-Adamson Company, Oliver Building, Pittsburgh, has received an order from the Hocking Power Company, Nelsonville, Ohio, for coal and ash handling machinery for its new plant, which will be equipped with 2000 hp. Flanner boilers, Green chain grate stokers and Foster superheaters.

The Standard Steel Car Company, Pittsburgh, recently started its new 12-in. merchant mill at Butler, Pa. It will roll angles and other small shapes to be used in the manufacture of cars.

The George T. Ladd Company, Farmers' Bank Building, Pittsburgh, has a contract for the installation of a new rope drive in the tin-plate and sheet mills of the Follansbee Brothers Company, Follansbee, W. Va.

A. N. Catra, Clarksville, Pa., will establish a small factory for the manufacture of wagons, buggies, etc., and for the repair of engines, boilers, automobiles and other machinery. He desires prices on new or second hand equipment covering these lines.

The Kingsley House Association, Valencia, Pa., will install a sewage treatment plant.

William McDonald, Keyser, W. Va., will establish a basket factory. Rotary machines and other equipment, besides power machinery, will be needed.

The Machinery Markets

The restraint of business incidental to the war continues practically unabated, but in many cities at least symptoms of betterment are discerned. In New York there have been some sales since the first of the month which would be considered good in normal times. In recent weeks the largest machine tool interest has booked orders from England aggregating over $500,000. The machine tool business in New England continues dull, but there is nevertheless some movement and some of the orders received are traceable to war influences. In Milwaukee the volume of trade is small, but the tone is improving and payrolls are being maintained. Detroit has received a better volume of inquiries and factory supplies are more active. Special machinery is selling well and automobile production is active in Cleveland, although many orders for equipment are being withheld pending better business conditions. Cotton crop troubles and consequent money stringency is holding business down in the Central South. Both inquiry and buying are better in St. Louis. Birmingham is adversely affected by the disposition of the cotton crop. Texas learns that conditions in Mexico are improving and expects that trade with that country will soon be reestablished, while better progress is being made in marketing the cotton crop. On the Pacific coast shipments to the Far East are moving more freely, but the machine tool trade is halted by the general policy of waiting. The Chicago market continues flat, though machine tool interests find encouragement in the results of the recent machinery exhibition in that city.

New York

NEW YORK, September 16, 1914.

The Niles-Bement-Pond Company has received from England in the last few weeks orders aggregating over $500,000 There is a widespread belief in the New York trade that business has taken a turn for the better. This is not based on sentiment or mere feeling, but on the fact that some offices have handled more business so far this month than they did in the entire month of August, while there also is given in evidence the fact that some recent sales have been of such a caliber that they would be regarded as good in normal times. One of these sales involved 14 automatic gear cutters valued at about $17,000; another called for two cylinder grinders valued at $2500. A turret lathe manufacturer sold 13 machines in the course of one week of this month and one order which a dealer received amounted to $33,000. A talking machine company, located in Philadelphia, bought machine tools amounting to $7000. Aside from these instances there has been a fairly good run of small orders which are always valued to fill in gaps between the larger ones. Confidence on the part of the investing public and manufacturers is undoubtedly slowly returning and should the railroads be placed in a position to buy conditions would probably soon arrive at a basis little less than normal, barring export trade.

The Consolidated Metal Fireproofing Company, 414-420 East 125th street, New York City, recently incorporated, has established a factory for the manufacture of metal covered windows, doors, etc., and in a short time will be in the market for machine tools. Alfred Baruth is president.

The New York Yacht, Engine & Launch Company, 175th to 177th streets and the Harlem River, New York, plans the rebuilding of its plant which was recently destroyed by fire, including the cabinet, boat-building and machine shops.

Charles P. Baldwin, 45 Clinton street, Newark, N. J., is preparing plans for a two-story reinforced concrete factory, 50 x 100 ft., to be erected on Sussex street at a cost of about $20,000. Electric power will be installed.

The Covert Motor Vehicle Company, Lockport, N. Y., states that on account of business conditions it will not erect its proposed factory building until next year. Some of its present equipment will be installed in the new building, when ready. E. J. Fritton is secretary.

The Edgar Starr Company, Gloversville, N. Y., has been incorporated with a capital stock of $40,000 and will establish a leather factory. G. W. Starr, F. Jaikle and C. E Klohck are the incorporators.

Rumsey & Co., Seneca Falls, N. Y., manufacturers of pumps, fire engines, etc., are taking bids for a manufacturing plant, comprising six buildings with a total area of 150,000 sq. ft. of floor space. Three of the buildings are to be one story and three two stories, all of brick and steel construction. The total estimated cost will be about $150,000. G. W. Thompson, Syracuse, N. Y., is the engineer.

The Madison Mfg. Company, Madison, N. J., has received bids for the erection of a building at Kings road and Prospect street, for the manufacture of binders' board. George W. Downs is president.

The citizens of Hopewell, N. J., have voted $10,000 of bonds for the improvement of the waterworks. John D. Kilpatrick, 30 Church street, New York, is the engineer.

The Municipal Gas Company, Albany, N. Y., has had plans prepared by Thomas H. Murray, care of the New York Edison Company, Irving Place and Fifteenth street, New York City, for a power house, 140 x 170 ft., two stories. Alexander Hamilton, 71 Trinity place, New York, is the general manager.

The Sheridan A. Walker Company, Elmhurst, L. I., has been incorporated with a capital stock of $60,000 by Sheridan A. Walker, A. Brietbard and S. V. Spille, Elmhurst, to manufacture car seats and railroad specialties.

Bids will soon be asked for by D. W. Peck, Albany, State Supt. of Public Works, for Erie Barge Canal contract "M," which calls for power plants, electric equipment and machinery for operating and lighting locks Nos. 1, 2, 3 and 4 of the Cayuga and Seneca Canal. State Engineer Benzel's estimate of cost for this work is $176,087.

The S. L. S. Electric Company, Poughkeepsie, N. Y., has been incorporated with a capitalization of $30,000. J. B. Ball, A. M. Sherer and A. Bolognesy, Highland, N. Y., are the directors.

Incorporation papers have been issued to the Hausen Neiter Safety Company, White Plains, N. Y., capitalized for $10,000, to manufacture machinery and special devices. J. McLaren, S. V. Dowling and F. B. Knowlton, 154 Nassau street, New York City, are the incorporators.

The Steward Engineering Corporation, 17 Battery Place, New York, has the contract for improvements to the power house of the Taggarts Paper Company, Great Bend, N. Y. J. M. Baldwin, Watertown, N. Y., is the engineer.

The Good-Wen Welding Company has been incorporated with a capital stock of $10,000 by Joseph T. Goodwin, 134 Belford avenue, New York City; M. T. Goodwin and J. E. Hewitt.

New England

BOSTON, MASS., September 15, 1914.

The machinery builders and dealers report a continuation of the dullness which has prevailed for some time. Business with them is not at a standstill, however; some orders are coming in, most of them from American customers who require new equipment for production that is foreign to the war, or only indirectly connected with it. Also, the war is making itself felt in the machinery trade. For instance, the Reed-Prentiss Company, Worcester, Mass., has just received from an American house inquiry for 40 20-in. lathes for the manufacture of projectiles, and has booked a cable order for a few machines from a European customer, doubtless for a similar purpose.

New England is affected by the new conditions in various ways. The machinery manufacturers are hit much harder than are their customers. From a low basis of production the degree of activity ranges upward among users of machinery. Manufacturers of toys, skates, cutlery, especially the cheaper grades, laces, and so on through a long list of specialties, are either working full time or overtime, or are preparing to take advantage of a situation in which foreign competition is eliminated for the time being.

The Plume & Atwood Mfg. Company, Waterbury, Conn., manufacturer of brass specialties, will build another addition, 40 x 60 ft., one story.

The Bangs power station of the Central Maine Power Company, Waterville, Maine, was recently struck by lightning and damaged to the extent of from $30,000 to $40,000. Practically all the generating and distributing machinery was destroyed.

The Lamb Mfg. Company, Winsted, Conn., is a new corporation organized to manufacture automobile accessories. One-half of the factory of B. J. Harrison has been leased, and manufacturing will begin about October 1.

The Connecticut Reformatory, Cheshire, Conn., will erect a factory building, 60 x 100 ft., two stories, of brick, mill construction.

The American Steel & Wire Company proposes to erect a one-story storage building, 72 x 108 ft., at the North Works, Worcester, Mass. However, work on the structure will not begin immediately.

The Graton & Knight Mfg. Company, Worcester, Mass., manufacturer of leather belting, states that its new building will be used for tannery and storage purposes, and will be 100 x 200 ft., one story.

The Central Mills Company, Southbridge, Mass., textile manufacturers, will build a brick storehouse, 60 x 113 ft., three stories.

The Fisk Rubber Company, Chicopee Falls, Mass., will build a three-story addition, to cost $75,000.

The new building of the Athol Pump Company, Athol, Mass., will be used for storage.

The Gilbert & Bennett Mfg. Company, Georgetown, Conn., states that no new equipment will be required for the addition to the power house, mention of which has been made.

The addition to the factory at New Bedford, Mass., of the Taunton-New Bedford Copper Company will be to the present refinery and will make room for one new furnace. The new equipment has been contracted for, the company states.

Philadelphia

PHILADELPHIA, PA., September 14, 1914.

The American Rubber Reclaiming Company, 406 East Rittenhouse street, Germantown, Philadelphia, has awarded the contract for the erection of an addition to its factory, to cost about $5700.

The Veta Mfg. Company, Allentown, Pa., plans the construction of a five-story factory, but work will be postponed until present business conditions improve. W. R. Hollingshead is president.

The Pennsylvania Shafting Company, Spring City, Pa., is building an addition, 40 x 150 ft., two stories, of brick construction, for the manufacture of the Wright taper roller bearing. It will probably be equipped with electric drive. Automatic screw machines, grinders, etc., will be installed. Willard Parker is vice-president and general manager.

C. W. Bolton & Son, architects, Witherspoon Building, Philadelphia, will let the contract for a one-story factory, 60 x 80 ft.

W. H. Lee, architect, Shamokin, Pa., has plans for alterations to the Shamokin State Hospital, including the installation of boiler feed pumps, forced draft apparatus, engine, dynamo, etc. The cost of the power plant improvements will total $20,000.

The city of Montgomery, Pa., will install a comprehensive sewer system.

Riggs, Distler & Stringer, Inc., engineers and contractors, Baltimore, Md., have been awarded the contract for the installation of the mechanical equipment, including heating, plumbing, laundry machinery and power plant, for the Maryland State Normal School, near Towson, Md. The total contract amounts to approximately $75,000 and covers the installation of 600-hp. water-tube boilers, ice machines, pumps, water system, automatic stokers, vacuum heating system and ventilation system for the dormitory, which will also be provided with 36 bathrooms, etc. The plans and specifications were prepared by Parker, Thomas & Rice and C. L. Reeder, consulting engineer.

The town of Hurlock, Del., has voted $45,000 of bonds for the installation of a waterworks and sewage system.

The Ford-Whitehurst Mfg. Company, Inc., Tenth and Byrd streets, Richmond, Va., will rebuild its plant recently burned and will install equipment to manufacture sash, doors and blinds, including planers, jointers, band saws and jig saws.

The Baugh & Sons Company, Norfolk, Va., fertilizer manufacturer, is erecting an addition to its main fertilizer building at Burton's Point. W. G. Jarvis is manager.

The Washington Steel & Ordnance Company, Washington, D. C., manufacturer of alloy steels, projectiles, etc., is building an addition to its drop-forging plant, 82 x 140 ft., and is adding five drop hammers, four presses, four heating furnaces, one upsetter and one bulldozer. It is also installing a large unit air compressor to supply air instead of steam for the hammers. H. F. Clark is secretary.

Day & Zimmermann, 611 Chestnut street, Philadelphia, engineers and architects, have awarded the contract for a two-story reinforced concrete factory, 66 x 133 x 154 ft., for Oliver Goldsmith, Philadelphia.

Walter N. Steppacher & Bro., 146 North Thirteenth street, Philadelphia, will erect a light manufacturing building, 22 x 55 ft., of brick construction, to cost about $7000.

The J. S. Rogers Company, Moorestown, N. J., has been awarded the contract for a one-story brick boiler and pump house, 30 x 54 ft., for the township of Chester, N. J.

Chicago

CHICAGO, ILL., September 14, 1914.

The demand for machinery in this market continues very flat and there is little or no improvement in inquiry. Machine tool interests represented at the Foundry and Machine Exhibition last week were considerably encouraged by the quality of the attendance and the indications that as soon as appropriations can be secured a very satisfactory buying will materialize. Railroad inquiry and purchase have been confined recently to individual tools, steam hammer, punching shear and other similar sales being reported.

The city of Chicago is in the market for a 21-in. turret lathe for its Ashland avenue water works shop and proposals will be received at 406 City Hall until September 22.

The Pettibone Mulliken Company, Chicago, is taking bids on a foundry, pattern storage and pattern shop, to be of reinforced concrete, steel and brick construction; the foundry to be 300 x 500 ft. and 50 ft. high; the pattern shop, 100 x 200 ft. and the pattern vault, 100 x 120 ft. It will install new cranes and is considering adding an electric furnace. Other new equipment will be required.

The Capital Electric Company, Chicago, has increased its capital stock from $10,000 to $25,000.

The Standard Relief Process Company, Chicago, has been incorporated with a capital stock of $50,000 to manufacture and deal in printing devices. Ira D. Hurlbut, Sherwin N. Bisbee and Ernest F. Fox are the incorporators.

The Utility Engineering & Drafting Company, Chicago, has been organized with a capital stock of $25,000 to do an engineering, construction and mechanical equipment business. The incorporators are B. Chase Rinehart, 5202 Winthrop avenue; Theodore Rodmann and F. M. Cornell.

The Juvenile Vehicle Mfg. Company, Chicago, has increased its capital stock from $10,000 to $25,000.

The Dry Products Company, Chicago, has been incorporated with a capital stock of $5000 to carry on the business of equipping and installing dry milk powder machines. The incorporators are B. F. J. Odell, 54 West Randolph street; T. C. Hugnes and F. W. Batterman.

The Improved Combustion Company, Chicago, has been incorporated with a capital stock of $40,000 by W. A. Smith, H. C. Adams, 28 East Jackson boulevard, and C. N. Moderwell to manufacture and install fuel-saving devices.

The Boller Insulated Wire Company, Chicago, has been incorporated with a capital stock of $20,000 to manufacture and deal in motors, electric appliances, wire and machinery. Peter Boller, W. N. Boller and W. H. Bentley, 124 North Curtis street, are the incorporators.

The Carman Mfg. Company, Chicago, has been incorporated with a capital stock of $2500 by Edward L. Archibald, Richard V. Megary and Charles R. Brown, 29 South LaSalle street, to manufacture automobile parts.

The Automobile Owners' Service Company, Chicago, has been incorporated with a capital stock of $2500 by G. H. Hollandsworth, 133 West Washington street, B. P. Dunlap and H. C. Pegram, to do a general automobile manufacturing business.

The E. M. Kramer Company, Paxton, Ill., has been incorporated with a capital stock of $75,000 to manufacture machinery by Emmil Kramer, B. R. Yergler and Harry P. Larsen.

The American Standard Automobile Company, Edwardsville, Ill., has been incorporated with a capital stock of $100,000 to manufacture machinery, planters, motors, automobile parts and accessories. Peter Burnhardt, Charles H. Gerling and Louis Kirsch are the incorporators.

The C. M. Williamson Corporation, Rockford, Ill., has been incorporated with a capital stock of $2500 to manufacture and deal in motor vehicles and accessories. The incorporators are C. B. Williamson, F. G. Gleasman and O. V. Williamson.

The Illinois Metals Company, Plano, Ill., manufacturer of sprayers, etc., has increased its capital stock from $30,000 to $50,000, to provide for increased business, and not from

$10,000 to $30,000 as has been stated elsewhere. J. P. Burke is president and general manager.

The city clerk, Chicago Heights, Ill., is advertising for new equipment for the pumping station.

Gary, Ind., has issued $75,000 worth of bonds for the building of a municipal waterworks.

Valentine, Neb., has sold $5000 of bonds for improvement to the water and lighting plant.

Uehling, Neb., is receiving bids for the construction of an electric lighting plant to cost about $7700, including oil-driven engine plant, etc.

Mesaba, Minn., has voted $14,000, of which $9300 will be used for installing a waterworks.

The plant of the Central Iron Works, Quincy, Ill., was burned September 6 with a loss of $35,000. It will be rebuilt at once.

The Aurora City Mills Company, Aurora, Ill., has been incorporated with a capital stock of $60,000 by John P. and Rudolph C. Scheets and Anton Ebenbauer to operate a milling plant.

The Tri-State Telephone Company, Clinton, Iowa, has been incorporated with a capital stock of $600,000 by A. G. Hawley and others.

The city of McIntosh, S. D., has issued bonds for $6000 to equip an electric lighting system.

The city of Morning Sun, Iowa, has voted to erect a waterworks.

Milwaukee

MILWAUKEE, WIS., September 14, 1914.

As manufacturer and consumer come to actual realization that the stoppage of imports is a boon to American industry, the tone of business gradually improves. Business is unquestionably beginning to see a revival, although it is generally admitted that the process will be a slow one, as all such readjustments must be. A discouraging feature of the situation is the money stringency, and collections are reported slow. Payrolls are being well maintained, indicating steady production. Labor troubles are at a minimum and unions are renewing agreements on former terms as they expire. The machine-tool business is somewhat better this week than last and inquiry is good, but the business that is being done is of small volume. Other machinery is slow and there is no indication of a heavy buying movement.

The Great Northern Mfg. Company, Beloit, Wis., will erect a factory at Rockton, Wis., to manufacture slot machines.

Three concerns were tied as low bidders for a new motor-driven centrifugal pump for the municipal waterworks system at Appleton, Wis. Allis-Chalmers Mfg. Company, the Lee Courtney Company, and the DeLaval Company, all bid $1300. The contract will be awarded later.

The Moll-Savage Motor Company, LaCrosse, Wis., has been organized with a capital stock of $10,000, by A. L. Moll, M. D. and S. G. Savage, to deal in motor vehicles, conduct a garage, etc.

The John Hoberg Paper Company, Green Bay, Wis., manufacturer of tissue and crepe paper, has decided to proceed with plans for a factory addition of brick and steel, to contain one paper and one finishing machine. Work is to begin about October 1.

W. R. Stelter, Fall Creek, Wis., has purchased a site and will erect a garage and machine shop, 36 x 100 ft.

The foundry of P. F. Mork, Beloit, Wis., is operating at full capacity, temporary repairs having been made on the old building which was damaged by fire recently. Work is being rushed on the new steel and concrete foundry, 45 x 65 ft., which was started before the fire, and the owner expects to begin operations in the new part by November 1.

The Milwaukee department of public works closes bids September 21 for installing coal hoppers, automatic weighing scales and tracks, etc., in the south boiler house of the North Point pumping station, Milwaukee. F. G. Simmons is the commissioner.

The Sheboygan Fiber Furniture Company, Sheboygan, Wis., has sold its plant and will erect a new factory at Seventh street and Jefferson avenue, to cost about $12,000. Otto A. Mueller is president.

The Cyclone Blowpipe Company, Chicago, has been awarded a contract for installing a complete blower and refuse disposal system in the large veneer plant of the Roddis Veneer Company, Marshfield, Wis. The system is one of the largest ever built.

The Whitewater Brick & Tile Company, Delavan, Wis., capitalized at $150,000, will shortly start work on the construction of a factory.

Cleveland

CLEVELAND, OHIO, September 14, 1914.

The dullness in the machine-tool trade continues. Business is confined for the most part to single tool sales and there are no new inquiries of any size. Several industrial concerns are considering the purchase of additional equipment either to make products that have been manufactured abroad or as a substitute for these products, but orders for this additional equipment are largely being withheld until there are more definite trade developments. There is considerable inquiry for various special machinery and handling equipment, but so far these inquiries have not resulted in orders. That the automobile trade is going ahead with the production of cars in a fairly satisfactory manner is indicated by reports from makers of automobile parts, who are getting a good volume of orders.

Sealed bids will be received at the office of the commissioner of purchases, Cleveland, October 7, for three low-lift steam turbine reduction-gear-driven centrifugal pumps for the Division pumping station.

The Wellman-Seaver-Morgan Company, Cleveland, has taken the contract for a coal-handling plant to be erected at Charleston, Va., for the Southern Railway. It will be of a new type and will consist of a car dumper and equipment for mechanically loading boats.

The Atlantic Refining Company, Cleveland, has placed contracts for the erection of four factory buildings, to be used in the manufacture of varnish.

The Samuel Austin & Son Company, Cleveland, which was recently given a contract for the erection of a new plant for the Dominion Chain Company, Niagara Falls, Ontario, to manufacture the Weed automobile tire chains for the Canadian trade, has received an additional contract for the heating and plumbing in the plant. Heating boilers and a refrigerator plant will be purchased. The plant will be a two-story reinforced concrete building, 160 x 440 ft.

The American Stamping & Enameling Company, Bellaire, Ohio, will build a large addition to its enamel factory. It recently removed its stamping department to Massillon, Ohio, but has retained its enameling plants in Bellaire.

The Maiwurm Aluminum Company, Wooster, Ohio, is planning the erection of a plant addition, 200 x 200 ft. The Commercial Club of that city has agreed to donate the company three acres of land as an additional building site.

A new plant will be built by the recently organized Auto Products Company, Canal Dover, Ohio. The establishment of the plant depended upon the subscription of $20,000 in stock of the company by the citizens of Canal Dover. This amount has been subscribed for and the promoters are to add an additional $20,000. The company will make a line of automobile parts and accessories. H. B. Redding, Cleveland, will be the manager.

A new foundry will be established in Warren, Ohio, by the Patterson Foundry Specialty Company, which will be provided with a four-acre site on the Erie and Pennsylvania railroads. This company was recently incorporated with a capital stock of $100,000. At its head will be F. J. Patterson, formerly of Cleveland. It will erect a main building, 60 x 200 ft.

The United States Insulator Company, which will build a new plant in Warren, Ohio, will shortly place contracts for two factory buildings.

The Pittsburgh Foundry Company, Salem, Ohio, has a plant addition under way.

The Wright Mfg. Company, Lisbon, Ohio, has acquired a site adjoining its plant, on which it will build an addition, the construction of which will probably be delayed until next spring.

The Delaware Foundry & Machine Company, Delaware, Ohio, has acquired a site on which it plans shortly to begin the erection of a foundry.

The Columbia Steel Company, Elyria, Ohio, is building an addition to its plant, 53 x 103 ft., in which three double annealing furnaces will be installed. The building will be equipped with a 35-ton Morgan crane.

J. W. Bicknell has acquired control of the Findlay Electric Porcelain Works, Findlay, Ohio. Improvements contemplated include the installation of new machinery and an elevator.

All bids received for the electric lighting system for the town of Mansfield, Ohio, have been rejected.

Waterworks bonds in the sum of $21,000 have been sold for the construction of waterworks for the town of Centerburg, Ohio.

The Gebhart Milling Company, Dayton, Ohio, has taken out a permit for remodeling its plant on East Third street.

Detroit

DETROIT, MICH., September 14, 1914.

The machine-tool market shows a little more life but the sales reported are all small and not of particular interest. Inquiries, too, are closely confined to single pieces of equipment, although the volume is somewhat greater than for the past few weeks. There has been a better demand for factory supplies, which is considered a sign of greater activity by some dealers. Second-hand machinery is moving slowly. In addition to pushing South American trade local manufacturers are making plans to develop closer relations with South Africa. Architects report building conditions decidedly dull.

Smith, Hinchman & Grylls, architects, Detroit, will take figures until September 21 for the erection of a brick and steel garbage reduction plant for the Department of Public Works, Detroit.

The Wil-Bar Mfg. Company, Detroit, has been incorporated with a capital stock of $15,000 to manufacture and deal in electrical devices. The principal stockholders are Joseph L. Simek and William W. Barcy.

The Detroit Steel Cooperage Company, Detroit, has filed notice of dissolution.

The Detroit Sanitary Closet Company, Detroit, has been incorporated with $100,000 capital stock to manufacture toilet apparatus. The incorporators are Willard A. McLean, Edward Van Doven and Edward C. Sutcliffe.

The Eastern United Machine Company, Detroit, has increased its capital stock from $5000 to $25,000.

The Cadillac Electrical Mfg. Company, Cadillac, Mich., has acquired factory quarters and will increase its manufacturing facilities.

The plant of the Eddy Paper Company, Three Rivers, Mich., which was recently damaged by steam to the extent of $50,000, will be put in shape for operation immediately and additional machinery installed.

The McQueen Furniture Company, Menominee, Mich., will add to its plant by the erection of a new building, 30 x 80 ft., of concrete construction.

The taxpayers of Essexville, Mich., have voted in favor of bonding for $20,000 to purchase a site for the plant the North American Construction Company will build at that point. The company, which is now located at Bay City, Mich., manufactures building materials and knock-down houses.

The Menominee Electric Mfg. Company, Menominee, Mich., has begun the construction of two additions to its factory, one to be used as a shipping room and the other as a brass foundry.

Cincinnati

CINCINNATI, OHIO, September 14, 1914.

A few small additional export orders have been received by machine-tool makers, one of which is said to have originated in Russia. A nice sized order for special machinery was also received from South America, but the question of foreign exchange is a vexing one. Local banks have not yet made arrangements for accepting drafts on Paris banks, but this trouble is expected to be remedied. The machine tools and other equipment on which the Chesapeake & Ohio Railroad Company put out a list several weeks ago have not yet been purchased. Orders from the general manufacturing trade continue quite light, but a number of firms report an increase in the number of inquiries. The jobbing foundries made a little better showing the past week. The leading local manufacturer of automobile parts is rushed with business.

Late reports indicate that the receivers of the Cincinnati, Hamilton & Dayton Railroad Company will be successful in obtaining permission from the courts to issue bonds for approximately $3,000,000. This amount is estimated as necessary for buying new equipment of all kinds, and in case the request is allowed, this railroad will probably be in the market soon for rolling stock and machinery, requisitions for which have already been made up.

The Cincinnati Locomotive & Car Works Company, Covington, Ky., expects to commence work soon on rebuilding its factory, recently destroyed by fire.

Contracts have been awarded for the power plant equipment to be installed in the Good Samaritan Hospital, Cincinnati, as follows: Boilers, Heine Safety Boiler Company; engines, Harrisburg Foundry & Machinery Company, and generator and switchboard to the Westinghouse Electric & Mfg. Company.

The Bonham Recorder Company, Hamilton, Ohio, has been incorporated with $75,000 capital stock to manufacture an automatic recorder for interurban cars. L. Bonham and Hamilton Wilson are named among the incorporators.

The Collin-Gardner Paper Company, Middletown, Ohio, has plans under way for extensive additions to its plant, including a new power house.

Work has been commenced on the new power plant of the Springfield Railway Company, Springfield, Ohio. Practically all the necessary equipment has been purchased.

The Columbus Collar Pad Mfg. Company, Columbus, Ohio, is remodeling a building on East Rich street, to which its factory will be moved. Considerable new machinery will be added. Mention of the company's plans was made several weeks ago.

The Blair Motor Truck Company, Newark, Ohio, has been incorporated with $100,000 by J. P. McCune, Charles A. Smith, and others. Nothing is known as to manufacturing plans.

The Central South

LOUISVILLE, KY., September 14, 1914.

Business conditions are reported by machinery manufacturers and dealers to be fair, but a little below normal. Ordinarily this season is productive of a considerable amount of new business, but the general financial and industrial situation is unfavorable to large expansions, and comparatively little new work is being undertaken by manufacturers. The feeling regarding the disposal of the cotton crop is more optimistic, however, and this is sure to have its effect on the machinery market. The distilling trade, which is an important factor in this section, is in bad shape, and the amount of improvements made this fall will be below the average. Gasoline engines, especially the smaller sizes, are reported to be in good demand. Locally there is a fair call for electrical machinery, but outside of Louisville business is below the average.

The Beattyville Utilities Company, organized in Louisville with $10,000 capital stock, will install an electric light and power plant at Beattyville, Ky. The equipment will include a 150-hp. boiler, a 100-hp. engine, a 2300-volt alternator, etc. E. Pearce Bullock, Jr., care of John D. Wakefield & Co., 118 South Fifth street, Louisville, is buying the machinery. The company will probably install a waterworks plant and ice factory in Beattyville later on. H. S. Vanzant, president of the company, is the Beattyville representative.

The Pioneer Pole & Shaft Company, Piqua, Ohio, which recently purchased the plant of the W. J. Gillette Mfg. Company, Louisville, is planning to electrify it and will probably be in the market for a large horsepower in motors. Walter Gillette is the local manager.

The Lexington-street Brewery Company, Louisville, is letting contracts for the construction or a boiler room at 913 South Eighteenth street. The Henry Vogt Machine Company, Louisville, has the contract for the new boilers.

The Indiana Leather Company, New Albany, Ind., is enlarging its plant and may need some additional equipment. It will consist chiefly of transmission machinery. Charles Moser may be addressed.

The Louisville Water Company, Louisville, will purchase an electric freight elevator for installation in a new storage building. James Wilson is chief engineer.

T. J. Daily, Builders' Exchange, Louisville, is to build a two-story factory at 214 East Bloom street. Wall plaster will be manufactured.

The harness factory of the Forman-Breen Mfg. Company, Louisville, was damaged by fire September 10, the loss being $30,000. The company has not determined what its machinery requirements for replacement will be.

The J. L. Roark Estate, Greenville, Ky., plans to build and equip an automobile garage and repair shop, and will be in the market for machine tools and other equipment.

The Mint Cola Bottling Company, Hazard, Ky., will purchase equipment for a bottling plant and ice factory which it is to establish. Electrical power equipment will be needed. D. Y. Wooten is in charge of purchases.

The Hill Chemical Company, Paducah, Ky., is reported to have plans for doubling the capacity of its plant. Theodore Metcalfe is secretary and general manager.

The American Mfg. Company, Chattanooga, Tenn., has purchased the plant of the Owensboro Shovel Company, Owensboro, Ky., and will move the machinery to Chattanooga.

The Rex Revolving Light Company, Vine Grove, Ky., has been incorporated with $15,000 capital stock by W. D. Carter, J. R. Davis, and others.

The Owensboro Ditcher & Grader Company, Owensboro, Ky., which, as recently reported, is planning the manufacture of contractors' equipment, has appointed R. Harry Ray

manager. He will be in charge of the purchase of equipment for its factory.

G. H. Montgomery, Mt. Olivet, Ky., will install equipment in an automobile repair shop.

Capelle & Thurgood, architects, Evansville, Ind., are drawing plans for a machine shop and garage to be built at Eldorado, Ill.

Elmer Day, Evansville, Ind., is having plans drawn for a garage and automobile repair shop, and will be in the market for some additional equipment.

The Savannah Motor Car Company, Savannah, Tenn., will purchase a 4-hp. gasoline engine and machine tools for its repair shop. T. R. Williams is manager.

H. L. Witt & Sons, Morristown, Tenn., will establish a wagon factory at Knoxville, Tenn.

The Maples Lumber Company, Knoxville, Tenn., which was recently incorporated with $50,000 capital stock, will build a planing-mill. Power and wood-working machinery, including saws, planers, etc., will be needed. C. F. Maples is manager.

The Cumberland Power & Ice Company, Clinton, Tenn., has been organized with $25,000 capital stock by J. P. Stanton, Samuel Watts, E. M. Beasley, and others.

Bids will be received by the city of Paducah, Ky., for a sewer system to cost about $449,000. L. A. Washington is city engineer.

Birmingham

BIRMINGHAM, ALA., September 14, 1914.

One of the largest machinery dealers repeated a truism when he said: "Business is inclined to be stagnant until there is some settlement of the cotton situation. Everything depends upon that. Thus far that settlement is not in sight." There is but little business in the sawmill or woodworking lines, as a rule; but machine tools are in fair demand. The business with the coal mines is reported as holding its own.

The Southern Railway has let several contracts in connection with the building of roundhouse, etc., in the Finley yards at North Birmingham. The Consolidated Engineering Company, Baltimore, Md., was awarded the contract for a transformer house, turntable, underpass and scale pits and will also build a coal chute.

The North Birmingham Fire Brick & Roofing Company, North Birmingham, will build a plant for the manufacture of clay tile silos.

Buildings are being constructed at Alexander City, Ala., for a cotton mill to be operated by Benjamin Russell and Thomas C. Russell, of the Russell Mfg. Company. The plant is to have 8000 spindles.

The Georgia Lumber Company, Miami, Fla., will establish a sash and door factory.

The Yellow Pine Lumber Company, Kissimee, Fla., is establishing a veneering mill.

The city of Quitman, Ga., has issued $40,000 of bonds for the improvement of its electric lighting plant, etc.

John W. Miner, Ronda, N. C., is in the market for a small 6-in. or 5-in. bench jointer and a No. 1 saw bench, American preferred; both second hand.

Texas

AUSTIN, TEXAS, September 12, 1914.

Advices from Mexico are that many of the mines are being re-opened and that industrial conditions throughout most of the republic are improving. Indications there are favorable for the early development of a large machinery trade. More cotton is being marketed in Texas than was expected and the business situation shows an improvement over that of a week ago.

The West Dallas Gravel & Sand Company, Dallas, which has been organized with a capital stock of $30,000, will install machinery for operating gravel beds. T. S. Craven is interested.

The Concrete Products Company, Houston, has been organized to manufacture concrete building materials. L. L. Rober is one of the principals.

The Planters Oil Company, Houston, has increased its capital stock from $75,000 to $200,000 and will make improvements to its cotton-seed oil mill.

The Home Light & Ice Company, Pittsburg, Texas, is making improvements to its electric light and ice plants.

The Potts-Moore Gravel Company, Waco, which has been organized, with a capital stock of $60,000 will install machinery at its gravel beds. J. Fred Smith is one of the owners.

The City Council, El Paso, Texas, has rejected all bids for installing pumps, boilers, air compressors and other machinery for the water plant. New bids will be received.

The Farmers' Gin Company, Corsicana, will construct a cotton gin. J. A. Cate is one of the proprietors.

The contract for the construction of a waterworks plant and distributing system at Floydada will soon be awarded. Bonds for the work have been voted.

St. Louis

ST. LOUIS, MO., September 14, 1914.

Business conditions in the machine-tool market are improving slowly. There is a little better buying and an increase in inquiry. Tentative requests for information that may lead to business are showing a rather encouraging definiteness. While the actual increase in business is not great, it is of such a character as to give the market a better tone. General business in the St. Louis territory is improving, the banking situation is better and there is a brighter state of affairs in the cotton area. An appreciable improvement from a buying standpoint has not yet begun to be clearly felt, as it is likely to be within the next 30 days. Collections continue good.

The Baumes-McDevitt Machinery Company, St. Louis, has been incorporated with a capital stock of $12,000 by P. B. Baumes, F. J. McDevitt and V. R. Baumes to manufacture and deal in mechanical appliances.

The Zuber Mfg. Company, St. Louis, has been incorporated with a capital stock of $25,000 by Gottlieb Zuber and Frederick and Alexander Girtanner to manufacture and deal in water heaters.

The Mutual Pressed Brick Company, St. Louis, recently incorporated for $50,000, is erecting a large plant near the city and will equip an initial unit for the manufacture of 25,000 pressed brick per day, increasing its capacity later. The address of the company is Clayton, Mo. Charles J. Zimmerman is president and Frank Frommeyer vice-president.

The Emporium Realty Company, St. Louis, will remodel and improve a power house at 613 Lucas avenue and will add about $2000 of equipment.

The Laclede Gas Light Company, St. Louis, will remodel one of its boiler houses and install about $7000 of new equipment.

The J. Arthur Anderson Laundry Company, St. Louis, will build an additional plant, three stories, 60 x 65 ft., and will install equipment to cost about $10,000.

The Hamilton Light & Power Company, Hamilton, Mo., has been incorporated with a capital stock of $30,000 by C. A. Martin, True D. Parr and J. W. McLean and will equip a public service plant.

The Hopkins Electric Light & Ice Company, Hopkins, Mo., has been incorporated with a capital stock of $20,000 by H. A. Dalby and others and will establish a plant to cost about $20,000. An oil engine will be installed. H. A. Dalby is manager.

The Cowgill Garage & Light Company, Cowgill, Mo., is reported planning the installation of an independent electric light plant of small size.

The Baxter Lumber Company, Kirksville, Mo., has been incorporated with a capital stock of $21,000 by C. J. Baxter and Charles V. and Frank C. Miller and will equip a woodworking plant.

The Strong Chemical Company, Kansas City, Mo., has been incorporated with a capital stock of $25,000 by W. E., A. F. and G. L. Strong and will equip to manufacture a general line of chemical products.

The National Lead Company, St. Louis, will erect an addition to its power plant, to cost about $8000.

The Continental Mfg. Company, Kansas City, Mo., has been incorporated with a capital stock of $100,000 by A. F. Lowry, William E. Morton, and others, and will establish a plant.

The Brookfield Creamery Company, Brookfield, Mo., has been incorporated with a capital stock of $18,000 by Paul Jones, Laclede, Mo., and C. H. Jones, Brookfield, Mo., and will equip a power plant as well as install separators, etc.

The St. Joseph Battery Company, St. Joseph, Mo., has been incorporated with a capital stock of $30,000 by H. D. Brach, A. C. Owens and L. C. Bauman and will equip a battery manufacturing plant.

The Standard Oil Company, Sugar Creek, Mo., is reported to have plans for the equipment at once of a waterworks plant of 30,000,000 gal. capacity.

St. Joseph's Hospital, Kansas City, Mo., will equip its $400,000 hospital with a power and heating plant, electric generator, lighting system, etc. Rudolph Meier, Lincoln Building, St. Joseph, Mo., is the architect in charge.

The W. F. Brawley Motor Company, Argenta, Ark., has been incorporated with a capital stock of $10,000 and will equip a repair shop in connection with a garage.

The Stout Lumber Company, Thornton, Ark., will equip a cotton gin of 30-bales daily capacity.

The Farmers' Gin & Seed Company, of which D. H. Smith is president, has been incorporated for $10,000 and has acquired the plant of the Moro Mercantile & Gin Company, Moro, Ark., and will add to and improve it.

George A. Pooser, Corning, Ark., and others, will rebuild the electric light plant recently burned.

The Waldron Planing Mill Company, Waldron, Ark., has been incorporated with a capital stock of $16,000 by J. S. Hill and others and will equip a plant at once.

The Arkansas Light & Power Company, Arkadelphia, Ark., has been incorporated with a capital stock of $650,000 by H. C. Couch, J. H. Meek, J. L. Longino, Little Rock, and others, to take over the business of the Arkansas Power Company and to operate plants at Arkadelphia, Malvern, Magnolia, Camden and other points and also to improve their equipment.

The Faultless Incubator Company, Grove, Okla., of which Henry E. Dixon is secretary, is in the market for tinning and wood-working machinery.

The city of Pond Creek, Okla., of which F. J. Gentry is mayor, will expend $7000 for additional equipment for its waterworks and electric light plants.

The Tahlequah Ice & Fuel Company, Tahlequah, Okla., has been incorporated with a capital stock of $15,000 by R. A. Deum, Tahlequah, and Hugo Wurdack, St. Louis, Mo., and others, and will equip an electric light and ice making plant.

A boiler plant will be equipped at Henryetta, Okla., by the Eclipse Boiler Works, Joplin, Mo., to handle trade in that section.

An ice plant of about 25-tons daily capacity will be equipped at Handsboro, Miss., by A. R. Martinolich.

The Long Beach Distilled Ice Company, Long Beach, Miss., will equip a 12-ton ice-making plant.

The Okolona Ice Company, Okolona, Miss., will increase its capacity by about 20 tons daily. John C. Kaye is owner of the plant.

The Maley Lumber Company, Yazoo City, Miss., has plans for the immediate equipment of a sawmill.

The Harris Ice Cream Company, New Orleans, La., has been incorporated with a capital stock of $50,000 and will equip to manufacture on a large scale.

The Webster Sawmill Company, Shreveport, La., has been incorporated with a capital stock of $25,000 and will establish a mill.

The Abita Springs Light & Power Company, Abita Springs, La., of which Emil Aubert is secretary, is in the market for equipment for a 25-hp. plant.

The New Orleans Silica Brick Company, New Orleans, La., has been incorporated with a capital stock of $300,000 by James H. Dvett, J. F. Carter, Jr., and will equip to manufacture sand-lime or clay bricks.

The New Orleans Trunk & Bag Company, New Orleans, La., has been incorporated with a capital stock of $10,000 by William H. Douglas, Jerome P. Davis and others and will equip a manufacturing plant.

Catalogues Wanted

The St. Louis Smelting & Refining Company, with purchasing department and general offices at St. Louis, is revising its catalogue files at its mines and smelter. Manufacturers and jobbers of such goods as this company might use are requested to send two copies of their catalogues to the following addresses: St. Louis Smelting & Refining Company, St. Francois, Mo., and St. Louis Smelting & Refining Company, Collinsville, Ill.

The Pacific Coast

SEATTLE, WASH., September 8, 1914.

The machine-tool business remains very quiet, as the more important buyers are unwilling to proceed with contemplated improvements until conditions become more settled, and the movement is confined almost entirely to small scattering orders from the interior. The demand for wood-working machinery so far shows little sign of revival, and talk is common of a more general closing down of lumber mills than has yet occurred, although export cargoes are moving more freely than last month. Other lines also are rather dull, but some encouraging features are noted. The grain crop is moving off well, and the interior is prosperous, with good prospects for agricultural and fruit canning machinery. Much interest is taken in the return of the salmon fleet from Alaska, as this year has been much more profitable to packers than last, and numerous orders for packing equipment are expected within the next few months. A few rush orders for mining machinery are also coming from Alaska, and manufacturers are hastening the completion of equipment destined for the interior of that territory.

C. H. Swigert, in charge of Government reclamation work near North Yakima, Wash., has received authority to begin work on three pumping plants in the lower Yakima Valley.

A. W. Blair, T. S. Johnson and R. A. Leiter, Portland, recently filed articles of incorporation for the Electric Service Vehicle Company, which proposes to manufacture automobiles, etc. The company is capitalized at $25,000. It is reported an assembling plant and a factory will be built before January 1.

The city of Melstone, Mont., has voted bonds in the sum of $19,000, to be used in the construction of a waterworks system. For further information address the city clerk.

The city of Cathlamet, Wash., will immediately begin the construction of a municipal lighting plant to cost not less than $5000. Power will be furnished by a distillate engine at first, but hydroelectric power will ultimately be developed.

George M. Harris, of the firm of Terry & Harris, Portland, Ore., has announced his intention of building a cast-iron pipe foundry in Portland. According to his estimates, the buildings and necessary operating equipment will cost not less than $250,000. Funds for the construction of the plant are reported available.

The Panama Eastern Lumber Company, Hoquiam, Wash., has already let the contract for the construction of a lumber mill in that city. It is understood the machinery for the plant has not yet been purchased.

The Crest Chemical Company, Seattle, of which H. Maschmidt, 2648 West Dakota street, Seattle, is president, contemplates the construction of a branch factory in Walla Walla, Wash. Preliminary plans are being drawn.

The Federal Machine Company, Spokane, capitalized at $10,000, recently filed articles of incorporation and purposes carrying on a general machinery business throughout Washington, Idaho and Montana. The incorporators are T. I. Gilmore, W. J. Taggard, E. A. Gilmore, and others. Henry A. Morley, 707 Realty Building, Spokane, is the attorney.

Charles W. Alger and O. O. Koeppel, Kelso, Wash., recently filed articles of incorporation for the Columbia Basin Condensed Milk Company, capitalized at $400,000, to conduct a milk condensing business at Kelso. Magill, McKenna & Brush, 826 Morgan Building, Portland, Ore., are attorneys for the company.

The Vilter Mfg. Company, Seattle, has been granted the contract by the Seattle Port Commission to install the cold storage equipment in the Central water front warehouse. The contract is for $33,490.

B. J. Hummell & Co., Seattle, manufacturers of chemicals, etc., have been incorporated with a capital stock of $5000. A. G. McBride, 428 Northern Bank Building, represents the company in Seattle. It is understood a plant will be built before January 1.

Oswald Edwards and E. O. Edwards, 251 Empire Building, Seattle, and others, have organized the Straits Lumber Company, Seattle, capitalized at $25,000, which purposes building a lumber mill.

Fire damaged the plant of the Carstens Packing Company, Tacoma, Wash., on September 1 to the extent of between $600,000 and $700,000. The two main buildings and the fertilizer plant were destroyed. Practically all of the machinery is a total loss. Thomas Carstens, president of the company, advises that it will rebuild temporarily, at least.

George W. Harding, Los Angeles, Cal., has plans for a group of nine buildings to be erected for the Pinney & Boyle Mfg. Company. They will be of reinforced concrete and will be equipped with the latest type machinery throughout. The largest building will be 300 ft. square.

Bonds have been sold to the amount of $100,000 for the installation of a water system at Escondido, Cal.

The Valley Pipe Line Company, 343 Sansome street, San Francisco, Cal., will install 11 pumping stations along its new oil pipe line. Each station will be equipped with two pumps and two or three boilers, with a capacity of at least 15,000 bbl. of crude oil in 24 hours. Sanderson & Porter, Nevada Bank Building, San Francisco, are the engineers.

The Calexico Compress Company, Calexico, Cal., has been incorporated with a capital stock of $50,000 to operate a cotton compressing plant, etc., and to establish an ice-making plant. W. G. Filee is president and T. J. West is secretary and general manager.

The Keeler Automatic Headgate Company, Provo, Utah, has been incorporated with a capital stock of $10,000 by J. B. Keeler and others to manufacture patented hydraulic apparatus. Joseph B. Keeler is president and R. J. Murdock is secretary.

Eastern Canada

TORONTO, ONT., September 12, 1914.

The Berlin Central Heating Company, Berlin, Ont., which has been purchased by a Toronto syndicate, will soon commence work on the construction of additions to its plant.

The Canada Glue Works, Echo Place, Brantford, Ont., which was destroyed by fire last April, is to start the construction of a new plant.

The James Smart Mfg. Company, Brockville, Ont., will erect a steel and concrete building, to cost $15,000, to replace the building destroyed by fire.

George Thomson, of the Thomson-Macdonald Company, Cobourg, Ont., will start a drain tile manufacturing business.

The proposed alterations and additions to the plant of the Chipman & Holton Knitting Company, Hamilton, Ont., have been postponed indefinitely on account of the war.

Mayor Allen, of Hamilton, Ont., announces that the United Gas & Fuel Company will build a coke and gas plant, to cost about $1,500,000.

Work will be started at once on the construction of the branch factory of the Ideal Concrete Machinery Company, Windsor, Ont.

Considerable repairs and additions are being made to the bell factory of the Canada Furniture Company, Wingham, Ont.

The A. A. Langford Company, London, Ont., will erect a factory, to cost $50,000. New machinery will be used.

The ratepayers of Merrickville, Ont., have passed a by-law to finance the Merrickville Power Company to the extent of $30,000 for the installation of an electric power plant.

The Town Council, Sydney, Cape Breton, will purchase for the waterworks plant a centrifugal pump with a capacity of 4,000,000 gal. per day, and motors with switchboard. Norman Hay is the engineer.

The Thompson & Norris Company, Concord and Prince streets, Brooklyn, N. Y., manufacturer of paper, packing, etc., which recently purchased a factory site at Montreal, Que., will commence building operations at an early date.

The British Construction Company, Sault Ste. Marie, Ont., is asking for quotations for machinery and supplies for the equipment of the machine shop in connection with its new drydock.

The City Commissioners, Montreal, Que., will purchase an electrically driven pump for the sewage disposal plant at Point St. Charles, Que.

The City Council, Ottawa, Ont., is contemplating the purchase of a new set of pumps for the Lecieux Island pumping station.

Tenders will be called in the near future for the improvements which will be made to the Ottawa waterworks plant, to include a large electrically-driven pump. The estimated cost of the improvements is $63,000. R. L. Haycock is the engineer.

The Higgins & Lee Motor Supplies, Ltd., Montreal, has been incorporated with a capital stock of $50,000 by Robert S. Higgins, J. L. R. Gibson, J. T. Lowry, and others, to manufacture machinery, automobile parts, etc.

The International Military Equipment Company, Ltd., Toronto, has been incorporated with a capital stock of $100,000 by Andrew M. Moffat, Joseph Doust, Stephen B. Dawson, and others, to manufacture military and naval equipment.

The Dominion Iron & Wrecking Company, Ltd., Quebec, Que., has been incorporated with a capital stock of $20,000 by Walter H. Millican, St. John, N. B.; F. O. Drouin, Paul Drouin, and others, to buy and sell new and old steel and other metals, etc.

The St. John Milling Company's plant at West St. John, N. B., which was destroyed by fire a short time ago will be rebuilt.

The Curtis Fire Systems, Ltd., Berlin, Ont., has been incorporated with a capital stock of $250,000 by Franklin D. Curtis, W. M. O. Lochead, Charles B. Dunke, and others, to manufacture fire detecting apparatus, etc.

The Canadian Simplex Motors, Ltd., Toronto, has been incorporated with a capital stock of $40,000 by John T. Loftus, John A. Milne, William H. Ford, and others, to manufacture automobiles.

The Monarch Paper Company, Ltd., Toronto, has been incorporated with a capital stock of $40,000 by Lewis F. Houpt, A. R. Currie, F. J. Smith, and others, to manufacture paper, bags, twine, etc.

The War Novelty Company, Ltd., Toronto, has been incorporated with a capital stock of $40,000 by M. L. Gordon, T. S. H. Giles, Arnold Pomeroy, and others, to manufacture bric-a-brac.

The Dominion Vacuum Cleaning Company has been incorporated in Ontario with a capital stock of $40,000 to manufacture wood and metal goods, vacuum cleaners, etc. It has appointed Gustavus J. Gustafson, Toronto, to be its attorney.

Western Canada

WINNIPEG, MAN., September 11, 1914.

The brick plant which will be established on the property of the Canadian Resources & Development Company, Port Arthur, Ont., will be ready to commence operations this fall.

The White Pine Lumber Company, Spokane, Wash., will erect a large sawmill at West Bridge, B. C. It will have a capacity of about 200,000 ft. per day.

The American Well Works, Aurora, Ill., is contemplating the erection of a branch factory at Winnipeg, Man.

J. P. Scott, McMullen Block, Edmonton, Alberta, will erect a pottery factory.

The Saskatchewan Bridge & Iron Company, Medicine Hat, Alberta, is pushing the construction of its new plant, the steel work being already up. A large amount of new machinery will be used in the plant when completed.

The British Columbia Milk Company, New Westminster, B. C., is erecting a large plant. It will include a boiler house and power plant.

Bids will be received by G. P. Campbell, secretary of the city of Transcona, Man., until September 26 for furnishing and erecting pumping machinery, including electrical equipment. Plans and specifications may be seen at the office of W. M. Scott, 204 Sterling Bank Building, Winnipeg, Man., the engineer.

The Beaver Tire & Rubber Company, Ltd., Calgary, Alberta, has been incorporated with a capital stock of $55,000.

The City Dairy Company, Winnipeg, Man., will erect a plant. Refrigerating and special equipment will be needed.

The Dunlop Pulp & Paper Mills, Ltd., Winnipeg, Man., recently incorporated with a capital stock of $1,000,000 will install about $200,000 worth of machinery in its proposed plant, which will cost about $150,000, as was reported. Some delay is anticipated as a result of the European war, but the plan will be carried out eventually. F. A. Dunlop is president.

Government Purchases

WASHINGTON, D. C., September 14, 1914.

The Lighthouse Inspector, San Francisco, Cal., will receive bids until 2 p. m., September 29, for furnishing duplicate internal combustion engines with direct-connected air compressors of about 30 hp. each.

The Bureau of Yards and Docks, Navy Department, Washington, will receive bids until 11 a. m., October 3, for furnishing and installing two 50-hp. boilers, etc., for Port Royal, S. C.

Sealed proposals will be received until 11 a. m., September 28, for furnishing one motor-driven ventilating fan, coupled to and driven by a 110-volt, three-phase, 60-cycle squirrel cage induction motor for the Engineer's Depot, U. S. Army, Washington, D. C.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, October 6, schedule 7297, for two 5-ton hydraulic cranes for Norfolk; schedule 7298, four portable bench grinders and four valve-reseating machines for Philadelphia; schedule 7299, two 5-ton I-beam travelers for New York; schedule 7300, three pipe-threading and cutting-off machines for Norfolk; schedule 7328, eight vertical-feed simplex pumps for Brooklyn, and schedule 7333, one pipe-threading and cutting-off machine for Philadelphia.

Bids were received at the Bureau of Supplies and Accounts, Navy Department, Washington, on September 8, for furnishing supplies for the navy yards as follows:

Schedule 7186, Steam Engineering

Class 71, Washington—One condensing plant—Bid 1, $7823; 120, $8234; 126, $9250; 129, $13,175; 131, $7075.

Alternate A—Same except without air pump—Bid 1, $6429; 120, $6079; 126, $7088; 129, $11,275; 131, $5590.

Alternate B—For air pump only—Bid 1, $1428; 13, $282; 120, $2155; 126, $2162; 129, $1950; 131, $1705.

The names of the bidders and the numbers under which they are designated in the above list, are as follows:

1, Alberger Condenser Company; 13, Beach, Russ Company; 120, Henry R. Worthington; 126, Wheeler Condenser & Engine Company; 129, Westinghouse Machine Company; 131, C. H. Wheeler Mfg. Company.